



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 472-2016

**WAVERLEY STREET UNDERPASS AT CN MILE 3.89 RIVERS SUB: CONTRACT 1-
PRELIMINARY UNDERGROUND WORKS AND SECURITY FENCING**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

- B1.1 WAVERLEY STREET UNDERPASS AT CN MILE 3.89 RIVERS SUB: CONTRACT 1-
PRELIMINARY UNDERGROUND WORKS AND SECURITY FENCING

B2. SUBMISSION DEADLINE

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, November 3, 2016.
- B2.2 Bids determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.
- B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. SITE INVESTIGATION

- B1.1 Further to C3.1, the Bidder may view the Site without making an appointment, excluding the private lands currently owned by Grant Memorial Baptist Church/Linden Christian School (Linden) within which the security fence will be constructed. Be aware, the City's intention is to obtain a temporary construction easement as delineated on the Drawings on these private lands. The temporary construction easement will not be in place during the Bid Opportunity. Once in place, this temporary construction easement will be the City's preferred access to SRB 6-22 portion of the Site.
- B3.1 The Bidder is advised that a non-mandatory Site investigation will be held to provide Bidders access to the Linden property. Bidders are to meet at the south east corner of the school yard on the public sidewalk on October 21, 2016 at 11:00 a.m. Parking is not available in the Linden school property. No additional site visits to the private lands will be permitted.
- B3.2 The Bidder shall not be entitled to rely on any information or interpretation received at the Site investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

B4. ENQUIRIES

- B4.1 All enquiries shall be directed to the Contract Administrator identified in D4.1.
- B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.
- B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.
- B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.
- B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.

B5. CONFIDENTIALITY

- B5.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:
- (a) was known to the Bidder before receipt hereof; or
 - (b) becomes publicly known other than through the Bidder; or
 - (c) is disclosed pursuant to the requirements of a governmental authority or judicial order.
- B5.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Bid Opportunity to the media or any member of the public without the prior written authorization of the Contract Administrator.

B6. ADDENDA

- B6.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.
- B6.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.
- B6.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>
- B6.2.2 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B6.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B7. SUBSTITUTES

- B7.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.
- B7.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.
- B7.4 The Bidder shall ensure that any and all requests for approval of a substitute:
- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
 - (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
 - (c) identify any anticipated cost or time savings that may be associated with the substitute;
 - (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in

accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;

- (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.
- B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.
- B7.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B17.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B8. BID COMPONENTS

- B8.1 The Bid shall consist of the following components:
 - (a) Form A: Bid;
 - (b) Form B: Prices;
 - (c) Bid Security:
 - (i) Form G1: Bid Bond and Agreement to Bond, or
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or
 - (i) a certified cheque or draft;
- B8.2 Further to B8.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B7.
- B8.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.
- B8.4 The Bid shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.
- B8.4.1 Samples or other components of the Bid which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid.

- B8.5 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.
- B8.6 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B17.1(a).
- B8.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.
- B8.8 Bids shall be submitted to:
The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg MB R3B 1J1

B9. BID

- B9.1 The Bidder shall complete Form A: Bid, making all required entries.
- B9.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
 - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
 - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
 - (d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B9.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.
- B9.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.
- B9.4 Paragraph 12 of Form A: Bid shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, it shall be signed by the Bidder;
 - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
 - (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers and the corporate seal, if the corporation has one, should be affixed;
 - (d) if the Bidder is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.
- B9.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.
- B9.5 If a Bid is submitted jointly by two (2) or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B10. PRICES

- B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.
- B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B11. DISCLOSURE

- B1.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.
- B1.2 The Persons are:
- (a) Plenary Roads Winnipeg Transitway LP – information exchange regarding general schedule of Contract 1 and Contract 2 and adjacent Southwest Rapid Transitway (Stage 2) and Pembina Highway Underpass Project in order to co-ordinate projects;
 - (b) PCL Constructor Canada Inc. – Construction industry representative to Value Engineering session held on October 21, 2014 as part of preliminary design of Waverley Underpass Project;
 - (c) Borland Construction Inc. - Construction industry representative to Value Engineering session held on October 21, 2014 as part of preliminary design of Waverley Underpass Project.

B12. QUALIFICATION

- B12.1 The Bidder shall:
- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and
 - (b) be financially capable of carrying out the terms of the Contract; and
 - (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.
- B12.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/debar.stm>
- B12.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) have successfully carried out work similar in nature, scope and value to the Work; and
 - (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and

- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba).

B12.4 Further to B12.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/ Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (b) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (c) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>).

B12.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B12.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B13. BID SECURITY

B13.1 The Bidder shall provide bid security in the form of:

- (a) a bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond); or
- (b) an irrevocable standby letter of credit, in the amount of at least ten percent (10%) of the Total Bid Price, and undertaking issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form included in the Bid Submission (Form G2: Irrevocable Standby Letter of Credit and Undertaking); or
- (c) a certified cheque or draft payable to "The City of Winnipeg", in the amount of at least fifty percent (50%) of the Total Bid Price, drawn on a bank or other financial institution registered to conduct business in Manitoba.

B13.1.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.

B13.1.2 All signatures on bid securities shall be original.

B13.1.3 The Bidder shall sign the Bid Bond.

B13.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.

B13.2 The bid security of the successful Bidder and the next two (2) lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.

- B13.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B13.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.
- B13.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.
- B13.3 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Bid Opportunity.

B14. OPENING OF BIDS AND RELEASE OF INFORMATION

- B14.1 Bids will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Division, or in such other office as may be designated by the Manager of Materials.
- B14.1.1 Bidders or their representatives may attend.
- B14.1.2 Bids determined by the Manager of Materials, or his/her designate, to not include the bid security specified in B13 will not be read out.
- B14.2 Following the Submission Deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>
- B14.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>
- B14.4 The Bidder is advised that any information contained in any Bid may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

B15. IRREVOCABLE BID

- B15.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.
- B15.2 The acceptance by the City of any Bid shall not release the Bids of the next two (2) lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly executed and the performance security furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid.

B16. WITHDRAWAL OF BIDS

- B16.1 A Bidder may withdraw his/her Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.
- B16.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.
- B16.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B16.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:

- (a) retain the Bid until after the Submission Deadline has elapsed;
- (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid; and
- (c) if the notice has been given by any one of the persons specified in B16.1.3(b), declare the Bid withdrawn.

B16.2 A Bidder who withdraws his/her Bid after the Submission Deadline but before his/her Bid has been released or has lapsed as provided for in B15.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law, including the right to retain the Bidder's bid security.

B17. EVALUATION OF BIDS

B17.1 Award of the Contract shall be based on the following bid evaluation criteria:

- (a) compliance by the Bidder with the requirements of the Bid Opportunity, or acceptable deviation there from (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B12 (pass/fail);
- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B7.

B17.2 Further to B17.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.

B17.3 Further to B17.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is responsible and qualified.

B17.4 Further to B17.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.

B17.4.1 Further to B17.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

B18. AWARD OF CONTRACT

B18.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B18.2 The City will have no obligation to award a Contract to a Bidder, even though one (1) or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.

B18.2.1 Without limiting the generality of B18.2, the City will have no obligation to award a Contract where:

- (a) the prices exceed the available City funds for the Work;
- (b) the prices are materially in excess of the prices received for similar work in the past;
- (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;

(d) only one Bid is received; or

(e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.

B18.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B17.

B18.3.1 Following the award of Contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C1. GENERAL CONDITIONS

- C1.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.
- C1.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C1.2 A reference in the Bid Opportunity to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

D1.1 In addition to the *General Conditions for Construction*, these Supplemental Conditions are applicable to the Work of the Contract.

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of:

- (a) new outfall within in an active SRB;
- (b) new large diameter (1200 mm and 1500 mm) land drainage sewer (LDS) piping to be installed using trenchless methods;
- (c) new land drainage system (LDS) system to service future CN Access Roads, which includes new manholes, connecting to an existing active 1350 mm monolithic sewer, and crossing below the existing active 900 mm Prestressed Concrete Cylinder Pipe (PCCP) Wilkes Avenue Feedermain;
- (d) new watermain toward the future Pumping Station; and,
- (e) new security fence around the Grant Memorial Baptist Church property, limiting access from the Linden Christian School to the construction Site.

D2.2 The major components of the Work are as follows:

- (a) New Outfall and Large Diameter LDS:
 - (i) New outfall to be constructed in SRB 6-22
 - (ii) Trenchless installation of approximately 87 m of 1500 mm LDS
 - (iii) Trenchless installation of approximately 130 m of 1200 mm LDS
- (b) New LDS system for future CN Access Road:
 - (i) Trenchless installation of new LDSs, ranging in size from 300 mm to 600 mm
 - (ii) Connection to an active 1350 mm LDS on Wilkes Avenue
 - (iii) Crossing below the existing 900 mm PCCP Wilkes Avenue Feedermain.
- (c) New watermain for future Pump Station:
 - (i) New 200 mm watermain includes new reducer, gate valve, bends, and stubs.
- (d) Security Fence:
 - (i) Installation of 1.8 m high chain link fence to delineate temporary construction easement in Linden Christian School property.
 - (ii) After installation of 1.8 m high chain link fence, removal of existing chain link fence and baseball field backstop.

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

- (a) **"AREMA"** means American Railway Engineering and Maintenance of Way Association;
- (b) **"ASTM"** means American Society for Testing and Materials;
- (c) **"AWWA"** means American Waterworks Association;
- (d) **"CN"** means Canadian National Railway Company or designated representative definition;

- (e) **"Contract 1"** refers to Contract as defined in C1.1 (n) and additionally refers to the Waverley Street Underpass at CN Mile 3.89 Rivers Sub: Contract 1 - Preliminary Underground Works and Security Fencing;
- (f) **"Contract 2"** means the Waverley Street Underpass at CN Mile 3.89 Rivers Sub: Contract 2 – Underpass Structures, Railworks, Roadworks, Land Drainage Sewer, Pumping Station and Landscaping Works;
- (g) **"CSA"** means Canadian Standard Association;
- (h) **"Linden"** means the property owned by Grant Memorial Baptist Church/Linden Christian School at 877 Wilkes Avenue;
- (i) **"NSF"** means National Sanitation Foundation;
- (j) **"Other Contractors"** means any person, firm, corporation, utility or other entity employed by or having a contract directly or indirectly with the City other than through the Contractor.
- (k) **"Protecting Foreman (also referred to as CN Assigned Employee)"** means the CN employee or Contractor employee qualified in the Canadian Rail Operation Rules (CROR) and CN requirements. Protecting Foremen are responsible for protecting employees against Railway traffic. Protecting Foremen are charged solely with the safe movement of trains and are not responsible for the safety of the Contractor, the Contractor's personnel or the Contractor's equipment;
- (l) **"RFI"** means Request for Information and means written documentation sent by the Contractor to the Contract Administrator requesting written clarification(s) and/or interpretation(s) of the Drawings, Specifications and/or Contract requirements and/or other pertinent information required to complete the Work;
- (m) **"Site"** In addition to the definition of Site in GC C1.1 bb), "Site" shall also refer to "Lands or areas delineated in the Drawing C1-CU-003 as being furnished by the City upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by the City which are designated for the use of the Contractor for the performance of the Work;
- (n) **"Submittal"** shall be a term synonymous with the term "Shop Drawings";
- (o) **"Project Closure Date"** means up to eighteen (18) months after Substantial Completion Date but no longer than three (3) months prior to the Agreement End Date;
- (p) "Agreement End Date" is March 31, 2024.

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is AECOM , represented by:

Mike Gaudreau, P.Eng.,

Telephone No. 204 - 477- 5381

Email Address mike.gaudreau@aecom.com

D4.2 At the pre-construction meeting, Mike Gaudreau, P.Eng., will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D5. CONTRACTOR'S SUPERVISOR

D5.1 At the pre-construction meeting, the Contractor shall identify his/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D5.2 At least two (2) business days prior to the commencement of any Work on the Site, the Contractor shall provide the Contract Administrator with a phone number where the supervisor

identified in D5.1 or an alternate can be contacted twenty-four (24) hours a day to respond to an emergency.

D6. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE

D6.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.

D6.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.

D6.3 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator:

- (a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;
- (b) the Contract, all deliverables produced or developed; and
- (c) any statement of fact or opinion regarding any aspect of the Contract.

D6.4 A Contractor who violates any provision of D6 may be determined to be in breach of Contract.

D7. NOTICES

D7.1 Except as provided for in C23.2.2, all notices, requests, RFI responses, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address, email address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.

D7.2 All notices, requests, RFIs, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D7.3, D7.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the email address, address or facsimile number identified in D4.1.

D7.3 Notwithstanding C21, all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:

The City of Winnipeg
Chief Financial Officer

Facsimile No.: 204 949-1174

D7.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents, or other communications required to be submitted or returned to the City Solicitor shall be sent to the following facsimile number:

The City of Winnipeg
Legal Services Department
Attn: Director of Legal Services

Facsimile No.: 204 947-9155

D7.5 Bids Submissions must not be submitted to this facsimile number. Bids must be submitted in accordance with B8.

D8. FURNISHING OF DOCUMENTS

D8.1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of the Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him/her at cost.

SUBMISSIONS

D9. AUTHORITY TO CARRY ON BUSINESS

D9.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D10. SAFE WORK PLAN

D10.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D10.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

D10.3 Notwithstanding D10.1, D10.2, and Appendix "B" CN Safety Requirements, the Contractor shall conform and operate in accordance with the CN "Safety Guidelines for Contractors".

D11. INSURANCE

D11.1 The City shall provide and maintain the following owner controlled project insurance coverage to remain in place at all times during the performance of the Work:

- (a) wrap-up general liability insurance in an amount of no less than twenty-five million dollars (\$25,000,000.00) inclusive per occurrence and twenty-five millions dollars (\$25,000,000.00) general aggregate, covering bodily injury, personal injury, property damage and products and completed operations consistent with industry standard insurance policy wordings. Wrap up liability insurance to also include evidence of contractual liability and cross liability clauses;
- (b) all risks course of construction insurance, including testing and commissioning, in an amount of one hundred percent (100%) of the total Contract Price. Coverage will extend for at least ten (10) days after the substantial completion date and if all testing and commissioning has not been completed at that time, the policy will extend until such time as all testing and commissioning has been completed;
- (c) the Contractor shall be responsible for deductibles up to fifty thousand dollars (\$50,000.00) maximum of any one loss except one hundred thousand dollars (\$100,000.00) for flood and water damage;
- (d) the City will carry such insurance to cover the Owner, Province, Federal Government, contractors, subcontractors and all consultants as insured's. Provision of this insurance by the City is not intended in any way to relieve the Contractor from his/her obligations under the terms of the Contract. Specifically, losses relating to deductibles for insurance, as well as losses in excess of limits of coverage and any risk of loss that is not covered under the terms of the insurance provided by the City remains with the Contractor;
- (e) wrap-up liability insurance shall be maintained from the date of the commencement of the Work until the date of Total Performance of the Work and shall include an additional twenty-four (24) months completed operation coverage which will take affect after Total Performance.

D11.2 The Contractor shall provide and maintain the following insurance coverage at all times during the performance of the Work:

- (a) commercial general liability insurance, in the minimum amount of ten million dollars (\$10,000,000.00) inclusive. The said Commercial General Liability insurance shall include coverage for products and completed operations, blanket contractual liability, cross liability, contingent employer's liability, owner and contractors protective, non-owned automobile, no XCU exclusion and unlicensed motor vehicle liability. The Province of Manitoba, the Federal Government of Canada and their ministers, officers, employees and agents, the City and Canadian National Railway shall be added as additional insured's. The policy to specifically include liability for operations within or around railroads and railway tracks. Subrogation will be waived against the City, Manitoba, Federal Government and Canadian National Railway;
- (b) Contractors Pollution Liability (CPL) insurance in the amount of at least five million dollars (\$5,000,000.00) per occurrence and five million dollars (\$5,000,000.00) aggregate covering third party injury and property damage claims, including clean-up costs and transported cargo as a result of pollution conditions arising from the Contractor's operations and completed operations. Such policy shall name the City, Manitoba and including a twenty-four (24) month extended reporting period;
- (c) automobile liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than five million dollars (\$5,000,000) inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;
- (d) property insurance for equipment and tools used on the project that may be owned, rented, leased or borrowed. Subrogation will be waived against the City, Manitoba, Federal Government and CN.

D11.3 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.

D11.4 The Contractor shall not cancel, or cause any such policy or policies to lapse without a minimum thirty (30) Calendar Days prior written notice to the City.

D11.5 The Contractor shall provide the Contract Administrator with evidence of insurance at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than seven (7) Calendar Days from notification of the award of the Contract. The evidence shall be in a form of a certificate of insurance and must be satisfactory to the City Solicitor.

D11.6 All policies shall be in a form satisfactory to the City and shall be kept in full force during the Work.

D12. PERFORMANCE SECURITY

D12.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
- (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
- (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.

D12.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D12.2 If the bid security provided in his/her Bid was not a certified cheque or draft pursuant to B13.1(c), the Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of letter of intent and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D13. SUBCONTRACTOR LIST

D13.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract.

D14. EQUIPMENT LIST

D14.1 The Contractor shall provide the Contract Administrator with a complete list of the equipment which the Contractor proposes to utilize (Form K: Equipment List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D15. DETAILED WORK SCHEDULE

D15.1 The Contractor shall provide the Contract Administrator with the Contractor's Detailed Work Schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract.

D15.2 The Detailed Work Schedule shall consist of a "baseline schedule" component showing the planned start and completion dates for all activities/tasks. In addition, the Detailed Work Schedule shall consist of an "update schedule" component showing the Contractor's updated planned or actual start, progress and completion dates for each activity/task as construction proceeds in order to compare Contractor's planned baseline schedule versus actual execution of the Work.

D15.3 The Contractor's planned baseline Detailed Work Schedule will be reviewed by Contract Administrator as a Submittal for conformance to the project intent and general conformance to the requirements of the Contract.

D15.4 Contractor shall not change the baseline portion of the Detailed Work Schedule, once it has been reviewed without issue by Contract Administrator, without prior consent or until requested by the Contract Administrator.

D15.5 The Detailed Work Schedule shall consist of the following:

- (a) a critical path method (C.P.M.) schedule for the Work;
- (b) a Gantt chart for the Work based on the C.P.M. schedule; and,
- (c) capacity to show simultaneously the planned baseline schedule as well as the update schedule for each activity/task.

D15.6 Conformance to the required dates of D23 Substantial Performance and D24 Total Performance. Further to D15.5(a) the C.P.M. Detailed Work Schedule shall at a minimum clearly identify the start and completion dates of all of the following activities/tasks, at a minimum, making up the Work as well as highlighting the activities/tasks on the critical path:

- (a) Date of Commencement of the Work;
- (b) Mobilization to Site;
- (c) Security Fence installation;
- (d) 1200 mm LDS:

- (i) Shoring and excavation
 - (ii) Installation of LDS
 - (iii) Manhole installation and backfill
 - (e) New Outfall:
 - (i) Cofferdam construction
 - (ii) Dewatering
 - (iii) Outfall construction
 - (iv) Riprap installation
 - (v) Reinstatement and clean-up of the SRB
 - (f) 1500 mm LDS:
 - (i) Excavation
 - (ii) Installation
 - (iii) Manhole installation and backfill
 - (g) LDS on Waverley:
 - (i) Connection to existing 1350 mm LDS
 - (ii) Installation of piping and appurtenances
 - (h) Watermain on Waverley:
 - (i) Installation of reducer and gate valve
 - (ii) Installation of watermain and appurtenances
 - (iii) Flushing, hydrostatic leakage testing and disinfection
 - (i) Surface Restoration;
 - (j) Substantial Performance;
 - (k) Total Performance; and,
 - (l) Demobilization from Site.
- D15.7 Further to D15.5(b) the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each activity/task. The time shall be on the horizontal axis, and the activity/task shall be on the vertical axis.
- D15.8 Without changing the baseline portion of the Detailed Work Schedule, at least once per month or within two (2) Working Days upon request from the Contract Administrator, Contractor shall accurately update the "update schedule".
- D15.9 Should Contractor's operations fall behind the accepted Detailed Work Schedule, Contractor shall, at no change in Contract Price, take corrective action to get back on schedule.
- D15.10 Contractor shall provide sub-schedules to define critical portions of the Work upon reasonable request from the Contract Administrator.
- D16. ENVIRONMENTAL PROTECTION PLAN**
- D16.1 Prior to commencing construction activities or delivery of materials to Site, submit an Environmental Protection Plan for review and approval by Contract Administrator. The Contractor's Environmental Protection Plan shall present a comprehensive plan to address all of the Contractor's chosen means and methods towards performing the Work that may impact the environment. The submission of the Environmental Protection Plan to the Contract Administrator shall in no way relieve the Contractor of full responsibility for the success or failure of all environmental management practices and procedures.
- D16.2 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work:

- (a) Federal:
 - (i) Canadian Environmental Assessment Act (CEAA) C.37
 - (ii) Fisheries Act C.F-14
 - (iii) Transportation of Dangerous Goods Act and Regulations C.34
 - (iv) Navigable Waters Protection Act
- (b) Provincial:
 - (i) The Dangerous Goods Handling and Transportation Act D12
 - (ii) The Endangered Species Act E111
 - (iii) The Environment Act C.E125
 - (iv) The Fire Prevention Act F80
 - (v) The Manitoba Heritage Resources Act H39-1
 - (vi) The Manitoba Noxious Weeds Act N110
 - (vii) The Manitoba Nuisance Act N120
 - (viii) The Public Health Act C.P210
 - (ix) The Workplace Safety and Health Act W210
 - (x) Current applicable Associated Regulations (Note: Provincial Regulations updated as of September 1999)
 - (xi) The Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat, Manitoba National Resources, 1996
- (c) Municipal:
 - (i) The City of Winnipeg By-law No. 1/2008 and all amendments up to and including 110/2012
 - (ii) The City of Winnipeg By-law No. 1573/77 and all amendments up to and including 154/2012
 - (iii) Any other applicable Acts, Regulations, and By-laws

D16.3 The Environmental Protection Plan shall address the following:

- (a) name[s] of person[s] responsible for ensuring adherence to Environmental Protection Plan;
- (b) name[s] and qualifications of Contractor's personnel responsible for manifesting hazardous waste to be removed from Site;
- (c) name[s] and qualifications of Contractor's personnel responsible for training Site personnel;
- (d) erosion and sediment control plan which identifies type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations;
- (e) work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas including methods for protection of features including vegetation to be preserved within authorized Work areas;
- (f) Environmental Emergency Response: including procedures, instructions, and reporting in the event of unforeseen spill of regulated substance;
- (g) Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris;
- (h) Hazardous materials and waste management plan outlining storage, transportation and disposal;
- (i) air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel off project Site;

- (j) contaminant prevention plan that: identifies potentially hazardous substances to be used on job Site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials;
- (k) Wastewater Management Plan that identifies methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete wash or curing water, clean-up water, dewatering of ground water, hydrostatic test water, and water used in flushing of lines;
- (l) monitor and report to ensure implementation of environmental protection measures.

D16.4 Fires

- (a) Fires and burning rubbish or waste materials on Site is not permitted.

D16.5 Disposal of Waste

- (a) Dispose all waste at licensed facilities or with licensed haulers;
- (b) All waste disposal grounds receiving debris and construction waste from this Project must be operated under the authority of a valid permit issued pursuant to MR 150 (latest edition) Waste Disposal Grounds Regulation under the Environment Act;
- (c) Dispose of all sewage and seepage from the on-Site sanitary facilities in accordance with the Onsite Wastewater Management Systems Regulation MR 83/2003;
- (d) Do not bury waste materials on Site;
- (e) Do not dispose of solid or liquid wastes in drains or waterways.

D16.6 Hazardous Waste

D16.6.1 Definitions

- (a) Dangerous Goods: product, substance, or organism that is specifically listed or meets hazard criteria established in the Dangerous Goods Handling and Transportation Act or regulations including hazardous materials and wastes;
- (b) Hazardous Material: product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment;
- (c) Hazardous Waste: any hazardous material that is no longer used for its original purpose and that is intended for recycling, treatment or disposal;
- (d) Workplace Hazardous Materials Information System (WHMIS): a Canada-wide system designed to give employers and workers information about hazardous materials used in workplace. Under WHMIS, information on hazardous materials is provided on container labels, material safety data sheets (MSDS), and worker education programs. WHMIS is put into effect by combination of federal and provincial laws.

D16.6.2 Materials Management

- (a) Only bring on Site quantity of hazardous materials required to perform Work;
- (b) Maintain MSDSs in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials;
- (c) Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.

D16.6.3 Storage and Handling

- (a) Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines:
 - (i) sign storage areas
 - (ii) store and handle flammable and combustible materials in accordance with current Manitoba and National Fire Code of Canada requirements
 - (iii) do not transfer of flammable and combustible liquids in vicinity of open flames or heat-producing devices
 - (iv) do not use flammable liquids having flash point below 38 degrees Celsius, such as naphtha or gasoline as solvents or cleaning agents
 - (v) store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum
 - (vi) observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled

- (b) Do not store more than 100 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use:
 - (i) store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval
 - (ii) storage of quantities of flammable and combustible liquids exceeding 100 litres for Work purposes requires the written approval of the Contract Administrator
 - (iii) fuel storage exceeding 100 litres shall be a minimum distance of 100 m from any water body and in compliance with the requirements of the Storage and Handling of Petroleum Products and Allied Products Manitoba Regulation 188/2001 of the Dangerous Goods Handling and Transportation Act

- (c) Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
 - (i) store hazardous materials and wastes in closed and sealed containers;
 - (ii) label containers of hazardous materials and wastes in accordance with WHMIS
 - (iii) store hazardous materials and wastes in containers compatible with that material or waste
 - (iv) segregate incompatible materials and wastes. Ensure that different hazardous materials or hazardous wastes are not mixed
 - (v) store hazardous materials and wastes in secure storage area with controlled access
 - (vi) maintain clear egress from storage area
 - (vii) store hazardous materials and wastes in location that will prevent them from spilling into environment
 - (viii) store products on spill trays or berms with one hundred and ten percent (110%) capacity
 - (ix) do not store within 30 m of a waterway or drain
 - (x) have appropriate emergency spill response equipment available near storage area, including personal protective equipment
 - (vii) maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began and disposal occurred. Maintain tipping and other disposal receipts

- (d) Report spills or accidents immediately:
 - (i) to the Contract Administrator
 - (ii) to Manitoba Conservation Accident Reporting Line at 204-944-4888 in accordance with Manitoba Regulation 439/87 of the Dangerous Goods and Transportation Act
 - (iii) submit a written spill report to the Contract Administrator outlining cause and proposed corrective action and Manitoba Conservation as required. Provide

copies of reports submitted to Manitoba Conservation to the Contract Administrator

D16.6.4 Transportation

- (a) Transport hazardous materials and wastes in accordance with the Manitoba Dangerous Goods Handling and Transportation Act:
 - (i) ensure that trained personnel handle, offer for transport, or transport dangerous goods
 - (ii) use licensed carrier authorized by provincial authorities to accept subject material
 - (iii) label container[s] with legible, visible safety marks as prescribed by federal and provincial regulations
 - (iv) provide photocopy of shipping documents and waste manifests to the Contract Administrator
 - (v) track receipt of completed manifest from consignee after shipping dangerous goods. Provide a photocopy of completed manifest to the Contract Administrator
 - (vi) report discharge, emission, or escape of hazardous materials immediately to the Contract Administrator and appropriate provincial authority. Take measures to control release

D16.6.5 Disposal

- (a) Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines:
 - (i) recycle hazardous wastes for which there is approved, cost effective recycling process available
 - (ii) send hazardous wastes to authorized hazardous waste disposal or treatment facilities
 - (iii) burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited
 - (iv) disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited

D16.6.6 Erosion and Sediment Control

- (a) Develop an erosion control plan to control negative impacts on water and air quality; plan should meet these objectives:
 - (i) prevent loss of soil during construction by storm water run-off and wind erosion
 - (ii) protect against erosion from stockpiled topsoil aggregates
 - (iii) prevent sedimentation of the land drainage system and receiving streams with dust, particulate matter or eroded sediment
- (b) Supply, install, maintain and remove (as applicable and when no longer required) effective sediment control barriers and erosion control before starting Work that may result in the deposit of sediment into a ditch or water body to avoid potential impacts to fish and fish habitat:
 - (i) erosion and sediment control measures and installations include, as required, silt socks around storm drains, silt fence barriers, erosion control blanket, straw wattles, and geotextile fabric as appropriate
 - (ii) routinely inspect all erosion and sediment control measures and installations and immediately repair any deficiencies

D16.6.7 Work to Adjacent Waterways

- (a) Do not operate construction equipment in waterways and, where possible, avoid operating equipment within 30 m of the waterway;

- (b) Do not use waterway beds for borrow material;
- (c) Do not dump excavated fill, waste material or debris in ditches or waterway;
- (d) Design and construct temporary crossings to minimize erosion to waterways;
- (e) Dispose of excavated materials above the high water mark and 30 m way from a watercourse.

D16.6.8 Drainage

- (a) Provide temporary drainage and pumping as necessary to keep excavations and Site free from water;
- (b) Do not pump water containing suspended materials into waterways, sewer, or drainage systems;
- (c) Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

D16.6.9 Reducing Site Disturbances

- (a) Do not disturb, in any way, the embankment slopes, roadway shoulders, and adjacent ground surfaces areas outside the limits of the construction areas including the approved lay down, staging and access unless written permission has been obtained from the Contract Administrator. Such written permission will be granted only if it can be shown that there is no alternative;
- (b) Minimize disturbance of any undeveloped areas on Site and maintain existing Site grading where indicated and where possible:
 - (i) minimize stripping of topsoil and vegetation
 - (ii) re-grade and plant vegetation on construction Site as soon as possible
 - (iii) avoid soil compaction where possible

D16.6.10 Pollution Control

- (a) Maintain temporary erosion and pollution control features installed under Contract 1;
- (b) Maintain construction equipment in good working order. Control emissions from equipment;
- (c) Cover or wet down dry materials and stockpiled soils to prevent blowing dust and debris. Provide dust control for the construction Site, temporary and access roads;
- (d) Bring only clean fill, granular, rip rap and other similar construction materials to the project Site;

D16.6.11 CN Environmental Requirements

- (a) Carry out all measures which CN, in its sole discretion considers necessary to keep the work free and clear of all environmental contaminants or residue results from the Contractor's occupation or use of the CN's premises (Premises), such condition to be confirmed by a post-termination environmental inspection/audit of the Premises to be carried out by CN. The Contractor shall be solely responsible for the cost of all work carried out to correct any environmental contamination which occurs on the Premises, or which occurs on other lands as a result of the Contractor's occupation or use of the Premises;
- (b) CN shall have the right to enter upon the Premises, at all reasonable times and from time to time, in order to inspect the Premises and conduct or require the Contractor to conduct, at the Contractor's expense, such tests as may be required to verify the condition of the Premises;

- (c) The Contract shall be responsible to notify CN of all environmental contamination that the Contractor suspects is occurring on or escaping onto the Premises from adjacent lands or resulting from third party occupation;
- (d) If the Contractor fails to correct any environmental contamination to the satisfaction of CN and any public authority having jurisdiction, CN may perform such work by its employees or agents. CN may charge the Contractor from time to time for all the costs incurred by CN in correcting such environmental contamination, plus fifteen percent (15%) for overhead, and the Contract shall pay CN's invoice or invoices for such costs within ten (10) Calendar Days of receipt of each invoice. In the event such remedial work is carried out by any public authority, the cost of such work shall be borne by the Contractor;
- (e) Upon completion of the contract, the Contract shall leave the Premises in a clean and tidy condition, free of any environmental contamination resulting from or occurring during the Contractor's occupation or use of the Premises. If the Contractor has installed any facility on or under the Premises, the Contractor shall remove such facility. The Contractor shall have the burden of proving that any environmental contamination has not resulted from or occurred during its occupation or use of the Premises.

D16.7 The responsibility of the Contractor to CN with respect to the environmental obligations contained herein shall continue to be enforceable by CN.

SCHEDULE OF WORK

D17. COMMENCEMENT

D17.1 The Contractor shall not commence any Work until he/she is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.

D17.2 The Contractor shall not commence any Work on the Site until:

- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D9
 - (ii) evidence of the workers compensation coverage specified in C6.15
 - (iii) the Safe Work Plan specified in D10
 - (iv) evidence of the insurance specified in D11
 - (v) the performance security specified in D12
 - (vi) the Subcontractor list specified in D13
 - (vii) the equipment list specified in D14
 - (viii) the detailed work schedule specified in D15
 - (ix) the Environmental Protection Plan specified in D16
 - (x) the security clearances specified in Part F
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting prior to commencement;
- (c) be aware that portions of the Site are located on or involve access to CN property. No Work on CN property shall commence until an agreement between CN Railway and the City is provided by the Contract Administrator. It is anticipated that a CN crossing agreement will be in place by March 1, 2017.

D17.2.1 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the letter of intent.

D17.3 The Contractor will not access or commence mobilization of the Site until after January 2, 2017 but before January 31, 2017 unless specified by the Contract Administrator.

D17.3.1 Work on the Linden Christian School yard shall not commence until the Contract Administrator confirms that arrangements have been made for access and/or possession. The City of Winnipeg is anticipating agreements will be in place by January 13 2017.

B1.3 The City intends to award this Contract by December 2, 2016.

B1.4 If the actual date of award is later than the intended date, the dates specified for Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D18. RESTRICTED WORK HOURS

D18.1 Further to clause 3.10 of CW 1130, the Contractor shall require written permission forty-eight (48) hours in advance from the Contract Administrator for any work to be performed between 2000 hours and 0700 hours, or on Saturdays, Sundays, Statutory Holidays and or Civic Holidays.

D18.2 The following work hour restrictions shall also apply: In accordance with the Manual of Temporary Traffic Control, Sections 2.03, 2.04, 2.05 and 2.06, should the Traffic Management Branch of the Public Works Department require that work on Regional Streets be carried out at night or on Sundays or on public holidays, where permitted by the City of Winnipeg Police Department, or that work be restricted or suspended during peak traffic hours, no additional compensation will be considered to meet these requirements.

D18.3 Contractor shall not perform Work within the temporary construction easement on the private Linden Christian School property between 7:30 am and 4:30 pm Monday through Friday. Contractor shall seek written permission to work outside of these hours in accordance with D18.1 or unless specified by the Contract Administrator.

D19. SCHEDULE RESTRICTIONS

D19.1 CN Protecting Foremen

- (a) The Contractor shall provide qualified Protecting Foremen for the project as outlined in Specification E14.

D19.2 Operating Constraints for Work in Close Proximity to Feeder mains

- (a) Refer to E18.

D20. WORK BY OTHER CONTRACTORS

D20.1 City reserves the right to enter into multiple separate contracts directly or indirectly in connection with Contract 1 of which the Work is a part, or do certain work by City forces.

D20.2 Contractor shall coordinate the Work of this Contract with the work of Other Contractors and City forces so as to not hinder, delay or interfere with the Other Contractor's and/or City forces in the performance of their work on Contract 1. Contractor shall connect his/her Work with the work of Other Contractors as shown in the Contract.

D20.3 Contractor shall report to the Contract Administrator any apparent deficiencies in Other Contractor's and/or City's work which would affect the Work of this Contract immediately as they come to Contractor's attention and Contractor shall confirm such report in writing within ten (10) Calendar Days of becoming aware of the deficiency. Failure by Contractor to so report shall invalidate any claims against the City by reason of the deficiencies of Other Contractor's and/or City force's work except as to those of which Contractor was not reasonably aware.

D20.4 Work by Other Contractors on, adjacent to or near the Site may include but are not necessarily limited to:

- (a) Manitoba Telecom Services – Relocation/protection of existing lines

- (b) Shaw – Relocation/protection of existing lines
- (c) Manitoba Hydro – Removal/relocation of existing hydro poles and street lighting
- (d) Manitoba Hydro Gas Division – Relocation/protection of existing lines
- (e) TeraSpan – Relocation/protection of existing lines
- (f) CN – CN Signal and Communication Works
- (g) Outfront Media/Winnipeg Transit – removal of bus stop shelter from concrete base SB Waverley Street approx. Sta 1+535 and NB Waverley Street approx. Sta 1+455
- (h) City of Winnipeg Traffic Services – Erection and maintenance of temporary traffic control signs in accordance with Section 2.04 of the “Manual of Temporary Traffic Control on City Streets (Revision 1 – 2016)”. Supply and installation of permanent traffic signs and bases. The Contractor shall adhere to said manual, and notify and cooperate with the City of Winnipeg Traffic Services regarding any disruption to traffic during construction
- (i) Contract 2 Contractor – Anticipated to commence in April 2017. The Contract 2 project area encompasses the Contract 1 area. The Contractor will be required to co-ordinate with Contract 2 works

D21. PROJECT AREA ON CN PROPERTY

- D21.1 The Contractor shall not commence Work on, across or access CN property until Contractor has provided proof of CN Contractor Safety Training for each individual proposed to work on the CN property.
- D21.2 If the Contractor requires a Temporary Construction Crossing Permit to suit Contractor’s means and methods, the Contractor shall complete the CN Work Permit Application and submit it with the permit fee to the Contract Administrator.

D22. SEQUENCE OF WORK

- D22.1 Further to C6.1, the construction of the new security fence along the Linden Christian School property shall be completed prior to removal of the existing fence.

D23. SUBSTANTIAL PERFORMANCE

- B1.1 The Contractor shall achieve Substantial Performance by May 1, 2017.
- D23.1 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.
- D23.2 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

D24. TOTAL PERFORMANCE

- B1.1 The Contractor shall achieve Total Performance by June 1, 2017.
- D24.1 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.

D24.2 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D25. LIQUIDATED DAMAGES

B1.1 If the Contractor fails to achieve, Critical Stages, Substantial Performance, or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Calendar Day for each and every Calendar Day following the days fixed herein for same during which such failure continues:

- (a) Substantial Performance – Three Thousand dollars (\$3,000.00) per Calendar Day;
- (b) Total Performance – One Thousand Five Hundred dollars (\$1,500.00) per Calendar Day.

D25.2 The amounts specified for liquidated damages in B1.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve, Critical Stages, Substantial Performance or Total Performance by the days fixed herein for same.

D25.3 Should the Contractor fail to achieve more than one Critical Stage and/or Substantial Performance and/or Total Performance date at one time, liquidated damages will not be compounded. Liquidated Damages will be charged in sequence until each stage/performance is met.

D25.4 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D26. SCHEDULED MAINTENANCE

D26.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

- (a) seeding as specified in CW 3520.

D26.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

CONTROL OF WORK

D27. BUILDING CANADA FUND – MAJOR INFRASTRUCTURE COMPONENT

D27.1 Funding for the Waverley Street Underpass at CN Mile 3.89 Rivers Sub: Contract 1 – Preliminary Underground Works and Security Fencing (also known as Contract 1 is being provided to the City of Winnipeg by the Government of Canada (“Canada”) and The Province of Manitoba (“Manitoba”). As required by the City’s funding agreements with Canada and Manitoba, the Contractor must:

- (a) Establish and maintain for a period of at least six (6) years, beginning at the Project Closure Date of Contract 1 proper and accurate financial accounts and records including, but not limited to, its contracts, invoices, statements, receipts and vouchers, (including supporting documents), prepared in accordance with generally accepted accounting principles, as are necessary to properly account for the services or goods provided by the Contractor to the City;
- (b) Permit The City, Manitoba, Canada, the Auditor General of Canada, and/or their designated representatives, to the extent permitted by law, at all times, to inspect the terms of the Contract and any records and accounts respecting the Project, and to have free access to the Project Sites and any documentation relevant for the purpose of audit;

- (c) Permit the City, Canada and/or Manitoba and its agents, and their respective authorized representatives, to monitor the Work and to inspect and audit the accounting and other records relating to the Work for a period of six (6) years following the Agreement End Date;
- (d) Indemnify and save Manitoba and its Ministers, officers, employees and agents harmless from and agents harmless from and against all claims and demands, losses, costs, damages, actions, suit or other proceedings brought or pursued in any manner in respect of any matter caused by the Contractor or arising from the Contract or from the goods or services provided, or required to be provided, by the Contractor, except those resulting from the negligence of any of Manitoba's Ministers, officers, servants, employees or agents;
- (e) Respect and comply with all applicable legislation and standards, whether federal, provincial or municipal, including (without limitation) labour, environmental, and human rights legislation;
- (f) Consent to the City providing a copy of the Contract to Manitoba and its agent upon request from Manitoba; and
- (g) Consent to the City providing Manitoba and its agents with the results of the City's inspections and audits of the Work and of the Contractor's accounts and records.

D28. JOB MEETINGS

- D28.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.
- D28.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

D29. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D29.1 Further to C6.24, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).
- D29.2 Further to C6.26, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba) as follows:
- (a) Contractor for Contract 1: upon commencement on Site of the Work of Contract 1;
 - (b) Other Contractor for Contract 2: upon commencement on Site of the Work of Contract 2.
- D29.3 The time and date of the commencement on Site of the Work of Contract 2 shall be the time and date determined by the Contract Administrator and stated in a notice to the contractors.

D30. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

- D30.1 Further to B12.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B12.4.

MEASUREMENT AND PAYMENT

D31. PAYMENT

D31.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

D32. PAYMENT SCHEDULE

D32.1 Further to C12, payment shall be in accordance with the following payment schedule:

- (a) All portions of Work including those designated for lump sum payment, will be paid for on a monthly pro-rata basis as determined by the Contract Administrator in consultation with the Contractor provided the portion of the Work to be paid for has been permanently incorporated into the Works.

WARRANTY

D33. WARRANTY

B1.1 Notwithstanding C13.2, the warranty period shall begin on the date of Substantial Performance and shall expire two (2) years thereafter, except where longer warranty periods are specified in the respective Specification sections, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D33.1.1 For the purpose of Performance Security, the warranty period shall be two (2) years.

D33.2 Notwithstanding C13.2, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Substantial Performance if a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.

D33.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

FORM H1: PERFORMANCE BOND
(See D12)

KNOW ALL MEN BY THESE PRESENTS THAT

_____ ,
(hereinafter called the "Principal"), and

_____ ,
(hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), in the sum of

_____ dollars (\$_____)

of lawful money of Canada to be paid to the Obligee, or its successors or assigns, for the payment of which sum the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has entered into a written contract with the Obligee for

BID OPPORTUNITY NO. 472-2016

WAVERLEY STREET UNDERPASS AT CN MILE 3.89 RIVERS SUB: CONTRACT 1- PRELIMINARY UNDERGROUND WORKS AND SECURITY FENCING

which is by reference made part hereof and is hereinafter referred to as the "Contract".

NOW THEREFORE the condition of the above obligation is such that if the Principal shall:

- (a) carry out and perform the Contract and every part thereof in the manner and within the times set forth in the Contract and in accordance with the terms and conditions specified in the Contract;
- (b) perform the Work in a good, proper, workmanlike manner;
- (c) make all the payments whether to the Obligee or to others as therein provided;
- (d) in every other respect comply with the conditions and perform the covenants contained in the Contract; and
- (e) indemnify and save harmless the Obligee against and from all loss, costs, damages, claims, and demands of every description as set forth in the Contract, and from all penalties, assessments, claims, actions for loss, damages or compensation whether arising under "The Workers Compensation Act", or any other Act or otherwise arising out of or in any way connected with the performance or non-performance of the Contract or any part thereof during the term of the Contract and the warranty period provided for therein;

THEN THIS OBLIGATION SHALL BE VOID, but otherwise shall remain in full force and effect. The Surety shall not, however, be liable for a greater sum than the sum specified above.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable as Principal, and that nothing of any kind or matter whatsoever that will not discharge the Principal shall operate as a discharge or release of liability of the Surety, any law or usage relating to the liability of Sureties to the contrary notwithstanding.

IN WITNESS WHEREOF the Principal and Surety have signed and sealed this bond the

_____ day of _____, 20____.

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

By: _____ (Seal)
(Attorney-in-Fact)

All demands for payment shall specifically state that they are drawn under this Standby Letter of Credit.

Subject to the condition hereinafter set forth, this Standby Letter of Credit will expire on

(Date)

It is a condition of this Standby Letter of Credit that it shall be deemed to be automatically extended from year to year without amendment from the present or any future expiry date, unless at least 30 days prior to the present or any future expiry date, we notify you in writing that we elect not to consider this Standby Letter of Credit to be renewable for any additional period.

This Standby Letter of Credit may not be revoked or amended without your prior written approval.

This credit is subject to the Uniform Customs and Practice for Documentary Credit (2007 Revision), International Chamber of Commerce Publication Number 600.

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

FORM K: EQUIPMENT

(See D14)

WAVERLEY STREET UNDERPASS AT CN MILE 3.89 RIVERS SUB: CONTRACT 1- PRELIMINARY UNDERGROUND WORKS AND SECURITY FENCING

<p>1. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____ Min. Working Days Committed to Contract: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____ Min. Working Days Committed to Contract: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____ Min. Working Days Committed to Contract: _____</p>
<p>2. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____ Min. Working Days Committed to Contract: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____ Min. Working Days Committed to Contract: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____ Min. Working Days Committed to Contract: _____</p>
<p>3. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____ Min. Working Days Committed to Contract: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____ Min. Working Days Committed to Contract: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____ Min. Working Days Committed to Contract: _____</p>

FORM K: EQUIPMENT

(See D14)

WAVERLEY STREET UNDERPASS AT CN MILE 3.89 RIVERS SUB: CONTRACT 1- PRELIMINARY UNDERGROUND WORKS AND SECURITY FENCING

4. Category/type:
Make/Model/Year: _____ Serial No.: _____
Registered owner: _____ Min. Working Days Committed to Contract: _____
Make/Model/Year: _____ Serial No.: _____
Registered owner: _____ Min. Working Days Committed to Contract: _____
Make/Model/Year: _____ Serial No.: _____
Registered owner: _____ Min. Working Days Committed to Contract: _____
5. Category/type:
Make/Model/Year: _____ Serial No.: _____
Registered owner: _____ Min. Working Days Committed to Contract: _____
Make/Model/Year: _____ Serial No.: _____
Registered owner: _____ Min. Working Days Committed to Contract: _____
Make/Model/Year: _____ Serial No.: _____
Registered owner: _____ Min. Working Days Committed to Contract: _____
6. Category/type:
Make/Model/Year: _____ Serial No.: _____
Registered owner: _____ Min. Working Days Committed to Contract: _____
Make/Model/Year: _____ Serial No.: _____
Registered owner: _____ Min. Working Days Committed to Contract: _____
Make/Model/Year: _____ Serial No.: _____
Registered owner: _____ Min. Working Days Committed to Contract: _____

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 Appendix "B" CN Safety Requirements take precedence on all matters within CN property.
- E1.4 The following are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
C1-GE-001	Cover Sheet
C1-GE-002	Drawing List
C1-CU-001	General Arrangement Drawing – Contract 1
C1-CU-002	Security Fence
C1-CU-003	Construction Access Sections and Site Plan
C1-CU-004	S.R.B.Outfall – Plan/Profile – LDS – Existing S.R.B. to Taylor Avenue
C1-CU-005	Waverley Street – Plan/Profile – Pumping Station Access Road – LDS
C1-CU-006	Waverley Street – Plan/Profile – Pumping Station Access Road – LDS
C1-CU-007	Civil Utilities Misc Details 1

GENERAL REQUIREMENTS

E2. OFFICE FACILITIES

- E2.1 The Contractor shall supply office facilities meeting the following requirements:
- the field office shall be for the exclusive use of the Contract Administrator;
 - the building shall be conveniently located near the Site of the Work;
 - the building shall have a minimum floor area of 25 m², a height of 2.4 m with two (2) windows for cross ventilation and a door entrance with a suitable lock;
 - the building shall be suitable for all weather use. It shall be equipped with an electric heater and air conditioner so that the room temperature can be maintained between either 16-18 or 24-25 degrees Celsius;
 - the building shall be adequately lighted with fluorescent fixtures and have a minimum of three wall outlets [fluorescent fixtures and have a minimum of three (3) wall outlets];
 - the building shall be furnished with one (1) desk, one drafting table, table 3 m X 1.2 m, one (1) stool, one (1) four-drawer legal size filing cabinet, and a minimum of 12 chairs;
 - The building shall be equipped with one (1) microwave, one (1) fridge, and one (1) water cooler with pick up and deposit of water jugs on a weekly basis;

- (h) A portable toilet shall be located near the field office building. The toilet shall have a locking door and be for the exclusive use of the Contract Administrator and other personnel from the City;
- (i) The field office building and the portable toilet shall be cleaned on a weekly basis immediately prior to each Site meeting. The Contract Administrator may request additional cleaning when he/she deems it necessary.

E2.2 The Contractor shall be responsible for all installation and removal costs, all operating costs, and the general maintenance of the office facilities.

E2.3 The office facilities will be provided from the date of the commencement of the Work to the date of Substantial Performance.

E3. SHOP DRAWINGS

E3.1 Description

- (a) This Specification shall revise, amend, and supplement the requirements of CW 1110 of the City of Winnipeg's Standard Construction Specifications;
- (b) The Contractor shall provide all Submittals and Shop Drawings required in the Contract as well as any additional Submittals reasonably requested by the Contract Administrator, at the Contractor's expense;
- (c) Verify:
 - (i) the term "Shop Drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, which are to be provided by the Contractor to illustrate details of a portion of the Work
 - (ii) the Contractor shall submit specified Shop Drawings to the Contract Administrator for review. All submissions must be in metric units. Where data is in imperial units, the correct metric equivalent shall also be shown on all submissions for Engineering review
 - (iii) provision of Shop Drawings will be considered incidental to the price for supply and delivery of equipment
- (d) Shop Drawings:
 - (i) original drawings are to be prepared by the Contractor, Subcontractor, Supplier, Distributor, or Manufacturer, which illustrate the appropriate portion of Work; showing fabrication, layout, setting, or erection details as specified in appropriate sections.

E3.2 Contractor's Responsibilities

- (a) Review Shop Drawings, product data, and samples prior to submission and stamp and sign drawings indicating conformance to the Contract requirements;
- (b) The Contractor shall provide all Submittals and Shop Drawings required in the Contract as well as any additional Submittals reasonably requested by the Contract Administrator, at the Contractor's expense.
- (c) Verify:
 - (i) field measurements
 - (ii) field construction criteria
 - (iii) catalogue numbers and similar data
- (d) Coordinate each shop drawing submission with the requirements of the Work and Contract Documents. Shop Drawings of separate components of a larger system will not be reviewed until all related drawings are available;
- (e) Notify Contract Administrator, in writing at time of Shop Drawing submission, of deviations from requirements of Contract Documents;

- (f) Responsibility for deviations in Shop Drawing submission from requirements of Contract Documents is not relieved by the Contract Administrator's review of submission, unless the Contract Administrator gives written acceptance of specified deviations;
- (g) Responsibility for errors and omissions in the Shop Drawing submission is not relieved by the Contract Administrator's review of the submittals;
- (h) The Contractor shall make any corrections required by the Contract Administrator and shall resubmit the required number of corrected copies of Shop Drawings. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections requested by the Contract Administrator on the previous submission;
- (i) After the Contract Administrator has reviewed and returned the copies, distribute the copies to sub-trades as appropriate;
- (j) Maintain one (1) complete set of reviewed Shop Drawings, filed by Specification section number, at the Site for use and reference by the Contract Administrator and Subcontractors.

E3.3 Submission Requirements

- (a) Schedule to submit Shop Drawing submissions following receipt of Notice of Award in accordance with B18 and allow for a seven (7) Calendar Day period for review by the Contract Administrator of each individual submission and re-submission, unless noted otherwise in the Contract Documents;
- (b) Submit five (5) paper prints of Shop Drawings. The Contractor is advised that the Contract Administrator will retain three (3) copies of all submittals and return two (2) copies to the Contractor;
- (c) Accompany shop drawing submissions with a transmittal letter containing:
 - (i) date
 - (ii) project title and bid opportunity number
 - (iii) Contractor's name and address
 - (iv) number of each Shop Drawing, product data, and sample submitted
 - (v) specification section, title, number, and clause
 - (vi) drawing number and detail/section number
 - (vii) other pertinent data
- (d) Shop Drawing submissions shall include:
 - (i) date and revision dates
 - (ii) project title and bid opportunity number
 - (iii) name of:
 - Contractor
 - Subcontractor
 - supplier
 - manufacturer
 - separate detailer when pertinent
 - (iv) identification of product or material
 - (v) relation to adjacent structure or materials
 - (vi) field dimensions, clearly identified as such
 - (vii) specification section name, number and clause number or drawing number and detail/section number
 - (viii) applicable standards, such as CSA or CGSB numbers
 - (ix) Contractor's stamp, initialed or signed, certifying review of submission, verification of field measurements, and compliance with Contract Documents.

E3.4 Other Considerations

- (a) Fabrication, erection, installation, or commissioning may require modifications to equipment or systems to conform to the design intent. Revise pertinent Shop Drawings and resubmit;
- (b) Material and equipment delivered to the Site will not be paid for until pertinent Shop Drawings have been submitted and reviewed;
- (c) Incomplete shop drawing information will be considered as stipulated deductions for the purposes of progress payment certificates;
- (d) No delay or cost claims will be allowed that arise because of delays in submissions, re-submissions, and review of Shop Drawings;
- (e) Only two (2) reviews of Shop Drawings will be made by the Consultant at no cost. Each additional review will be charged to the Contractor at the Consultant's scheduled rates and at the discretion of the Consultant. The Consultant's charges for the additional Work will be deducted from the Contractor's Progress Certificates.

E4. GEOTECHNICAL INSTRUMENTATION

E4.1 Surface Monitoring of CN Tracks

- E4.1.1 Be aware, the Contract Administrator will be monitoring the CN track elevations at the surface in and around the location of the LDS installation crossing the tracks.

E4.2 Subsurface Monitoring Near Wilkes Feedermain

- E4.2.1 The Contract Administrator will monitor subsurface settlement monitor plates installed on either side of the LDS crossing of the Wilkes feedermain. The subsurface settlement plates shall be installed by Contractor according to the Drawing details. The plates shall be installed a minimum of fourteen (14) Calendar Days prior to installing the LDS crossing of the feedermain.

E5. PROTECTION OF EXISTING TREES

- E5.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing trees that are to remain within the limits of the construction area:
 - (a) the Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 m of trees;
 - (b) trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400 mm wood planks, or suitably protected as approved by the Contract Administrator;
 - (c) excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of one and a half (1.5) times the diameter (measured in inches), with the outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation;
 - (d) operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the Work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located;
 - (e) work on-Site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.

- E5.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his/her designate.
- E5.3 No separate measurement or payment will be made for the protection of trees.
- E5.4 Except as required in clause E5.1(c) and E5.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

E6. CLEARING AND GRUBBING

DESCRIPTION

- E6.1 Clearing and Grubbing
- E6.1.1 Further to CW-2010-R4, the Contractor is to restrict activities to areas indicated on the Drawings and as instructed by the Contract Administrator.

MEASUREMENT AND PAYMENT

- E6.2 Clearing and Grubbing
- E6.2.1 Clearing and Grubbing shall be considered incidental to the Work and no separate measurement or payment will be made.

E7. SITE SECURITY

- E7.1 Any existing security fencing and other security measures that are altered during construction shall be replaced or repaired to a condition equal to or better than pre-construction conditions. No separate measurement for payment shall be made for this Work.

E8. TRAFFIC CONTROL

- E8.1 Further to clauses 3.6, 3.7 and 3.8 of CW 1130:
- (a) where directed by the Contract Administrator, the Contractor shall construct and maintain temporary asphalt ramps to alleviate vertical pavement obstructions such as manholes and planing drop-offs to the satisfaction of the Contract Administrator. No separate measurement for payment shall be made for this Work.
 - (b) in accordance with the Manual of Temporary Traffic Control on City Streets (MTTC), the Contractor ("Construction Agency" in the manual) shall be responsible for placing, maintaining and removing the appropriate temporary traffic control devices as specified by the MTTC or by the Traffic Management Branch of the City of Winnipeg Public Works Department. The Contractor shall bear all costs associated with the placement of temporary traffic control devices by their own forces or Subcontractor.
- E8.2 Notwithstanding E8.1, in accordance with the MTTC, the Contract Administrator shall make arrangements with the **Traffic Services Branch of the City of Winnipeg** to place, maintain, and remove all **regulatory signs** and traffic control devices authorized and/or required by the Traffic Management Branch in the following situations:
- (a) parking restrictions;
 - (b) stopping restrictions;
 - (c) turn restrictions;
 - (d) diamond lane removal;
 - (e) full or directional closures on a regional street;
 - (f) traffic routed across a median;

- (g) full or directional closure of a non-regional street where there is a requirement for regulatory signs (turn restrictions, bus stop relocations, etc.) to implement the closure;
- (h) Approved Designated Construction Zones with a temporary posted speed limit reduction. Traffic Services will be responsible for placing all of the advance signs and 'Construction Ends' (TC-4) signs. The Contractor is still responsible for all other temporary traffic control including but not limited to barricades, barrels and tall cones.

E8.2.1 An exception to E8.2 is the 'KEEP RIGHT/KEEP LEFT' sign (RB-25 / RB-25L) which shall be supplied, installed, and maintained by the Contractor at their own expense.

E8.2.2 Further to E8.2, where the Contract Administrator has determined that the services of the Traffic Services Branch are required, the City shall bear the costs associated with the placement of temporary traffic control devices by the Traffic Services Branch of the City of Winnipeg in connection with the works undertaken by the Contractor.

E9. TRAFFIC MANAGEMENT

E9.1 Further to clause 3.7 of CW 1130:

E9.1.1 Where left turn lanes exist, an additional lane to accommodate the left turn storage lane shall be maintained at all times.

E9.1.2 During the watermain connection at approximately station 1+525, the northbound curb lane may be closed.

E9.1.3 The Contractor shall maintain access to all private approaches to businesses and properties during construction. No private approach closures shall take place without the written permission of the approach owner, affected property owner(s), and the approval of the Contract Administrator with the Contractor giving a minimum forty-eight (48) hour notice prior to any approach closure.

E9.1.4 During the connection of the LDS to the existing LDS at approximately Station 1+480, the eastbound median lane may be closed on Wilkes Avenue, West of Waverley Street outside of the morning peak period (7:00-9:00).

E9.1.5 During the connection of the LDS to the existing LDS at approximately Station 1+500, the westbound curb lane may be closed on Wilkes Avenue, West of Waverley Street with no time restrictions.

E9.1.6 If the Contractor must close the westbound lane of Taylor at Ash Street for the connection of the LDS outfall to SRB 6-22, the Contractor shall provide flagging control to maintain two-way traffic on Taylor Avenue.

E9.1.7 Intersecting local street, median opening and private approach access shall be maintained at all times unless approved by the Contract Administrator. Traffic on intersecting regional/collector streets shall be maintained at all times as stated in E8 Flag persons may be necessary to maintain the flow of traffic during certain work operations.

E9.1.8 Should the Contractor be unable to maintain pedestrian or vehicular access to a residence or business, he/she shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of twenty-four (24) hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.

E9.1.9 Ambulance/emergency vehicle access must be maintained at all times.

E10. PEDESTRIAN SAFETY

E10.1 During the Project, the east side active transportation pathway of Waverley Street from Hurst Way to Taylor Avenue will have temporary closures. The Contractor shall maintain pedestrian access to the sidewalk on the west side of Waverley Street during this time. If work is taking

place on the west side of Waverley Street, the Contractor shall maintain pedestrian access to the sidewalk on the east side of Waverley Street.

E10.2 The Contractor shall maintain and relocate as necessary all temporary bus stop locations on the Project during the construction in consultation with the Contract Administrator.

E11. WATER OBTAINED FROM THE CITY

E11.1 Further to clause 3.7 of CW 1120, the Contractor shall pay for all costs, including sewer charges, associated with obtaining water from the City in accordance with the Waterworks and Sewer By-laws.

E12. SURFACE RESTORATIONS

E12.1 Further to clause 3.3 of CW 1130, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not completed to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

E13. INFRASTRUCTURE SIGNS

E13.1 The City of Winnipeg will be responsible for the supply and installation of the infrastructure signs. The Contractor shall be responsible for the protection and any relocations of the signs at each street as required during the course of the Project. When the Contract Administrator considers the Work on the street complete, the Contractor shall remove and dispose of the signs and supports. No measurement for payment will be made for performing all operations herein described and all other items incidental to the Work described.

E13.2 Expected Locations of Signs are as follows:

- (a) Northbound Waverley Street, Southside of Hurst Way;
- (b) Eastbound Taylor Avenue at Lindsay Street;
- (c) East/Westbound Grant Avenue, West of Oxford Centre Median; and
- (d) East/Westbound Taylor Avenue, West of Cambridge Centre Median.

E14. COORDINATION OF CONSTRUCTION WITH CN

DESCRIPTION

E14.1 General Requirements

E14.1.1 The Contractor shall be responsible to meet all CN, constraints, requirements, and safety measures.

E14.1.2 The Contractor shall be responsible for any damage, delay, disruption and/or inconvenience caused to CN by his/her equipment or operations of Work to the tracks, the railway's operation or their property.

E14.1.3 If any emergency occurs, CN can be contacted through its Emergency CN Police Line 1-800-465-9239.

E14.1.4 The Contractor shall follow the requirements of CN as stipulated in the CN Safety Requirements herein in this Bid Opportunity Appendix B. All employees of the Contractor shall obtain the CN Contractor Orientation Identification card and sticker prior to working on Site.

E14.1.5 The Contractor shall provide CN with a twenty-four (24)-hour phone number through which the Contractor can be contacted for emergency purposes.

E14.2 Temporary Construction Crossing Permit

- E14.2.1 Should CN allow a temporary construction crossing, the Contractor shall be responsible for the application and payment for the temporary construction crossing permit. The Contractor together with the Contract Administrator will meet with the appropriate CN representative and determine the best location for the crossing. A detailed safety plan regarding vehicle and equipment crossing shall be submitted by the Contractor with the permit.
- E14.2.2 On a daily basis the designated Contractor's employee shall discuss the days' equipment movement over the crossing with the protecting foreman.
- E14.2.3 At the end of each working day the Contractor will be responsible to barricade the crossing to stop vehicle/equipment movements across the active rail lines.
- E14.2.4 All costs, liabilities, cleaning up and restoring of Site after removal of the crossing shall be the Contractor's responsibility.

E14.3 Contractor's Use of Site

- E14.3.1 The Contractor shall confine storage of materials and the operations of equipment, workmen, and erection of trailers to the limits indicated on the Contract Drawings.
- E14.3.2 No materials shall be stored closer than 5 m of the nearest rail of any operated track. Material shall not be stockpiled higher than 1.5 m.
- E14.3.3 All costs, liabilities, cleaning up and restoring of Site after completion of the Project will be the Contractor's responsibility.

E14.4 Flag Protection of Work

- E14.4.1 The Contractor will be required to supply flag protection for this Project.
- E14.4.2 Protecting Foremen must have qualifications that meet CN requirements and are required to provide proof of such with a copy of record provided to the Contract Administrator prior to the start of any works. There will be no separate measurement and payment to Contractor for flag protection.

E14.5 Signals and Communication Cables

- E14.5.1 The Contractor shall request CN to locate their cables before commencement of any Work.
- E14.5.2 The Contractor shall give CN seventy-two (72) hours' notice to locate cables.
- E14.5.3 The Contractor shall use extreme caution when working in the vicinity of any signal and communication cables.
- E14.5.4 As a result of damage to any cable, fibre optic line or associated equipment by his/her operations, the Contractor shall be held responsible for all costs required to repair the cable, as well as the loss of all revenue incurred by CN.

E14.6 Barricades and Signage

- E14.6.1 The Contractor shall observe all necessary precautions and provide, erect, and maintain suitable signs, barricades, and lights to protect all persons from injury and all vehicles from damage during the progress of the Work, all to the approval of the Contract Administrator or any authority having jurisdiction at this location.

E14.7 Down Time

- E14.7.1 The Contractor shall anticipate down time each day for crane work or any equipment, such as drill rigs, that could fall on CN property. With thirty-five (35) to forty (40) trains a day, passing adjacent to the Project Site, 280 to 400 minutes of down time within a twenty-four (24)-hour period is anticipated.

E15. ENCROACHMENT ON PRIVATE PROPERTY

- E15.1 Further to Section 3.11 of CW 1130 of the General Requirements, the Contractor shall confine his/her work to the Site at all times, except if he has received written permission from the property owner to use lands outside of Site. The Contractor shall provide the Contract Administrator with a copy of any written permission he has received to enter onto private property and the Contractor is solely responsible for all costs associated with such arrangements.
- E15.2 The Contractor's construction activities shall be confined to the minimum area necessary for undertaking the Work and he shall be responsible for all damage to all property resulting from his/her work. Particular care shall be taken to assure no damage is done to building, fencing, trees and plants, and provision shall be made to maintain full drainage for all properties during construction.

E16. HYDRO EXCAVATION

DESCRIPTION

- E16.1 General
- E16.1.1 This Specification shall cover the removal of earthen material immediately adjacent to underground utilities infrastructure by means of high pressure water spray, and the recovery of evacuated material by vacuum type means or equivalent method as approved by the Contract Administrator.
- E16.2 Equipment
- E16.2.1 Hydro excavation unit shall be capable of maintaining a minimum working pressure of 10,000 psi, at a rate of flow of ten (10) to twelve (12) gallons per minute. Unit should be adjustable, so as to provide adequate pressure to remove earthen material identified by the Contract Administrator.
- E16.2.2 Spray head shall be equipped with a rotating type nozzle, in order to provide a wider path of cut.

CONSTRUCTION METHODS

- E16.3 Hydro-Removal of Earthen Material
- E16.3.1 Earthen material adjacent to utility entity shall be sprayed with high pressure water so as to remove all such material identified by the Contract Administrator.
- E16.4 Recovery of Excavated Material
- E16.4.1 The recovery of excavated material shall be done using vacuum type method, or other type method as approved by the Contract Administrator.
- E16.4.2 The recovery of material shall follow immediately behind the excavation, to avoid excavated areas from filling with excavated material.
- E16.4.3 The use of mechanical sweepers will not be allowed.
- E16.4.4 Dispose of material in accordance with Section 3.4 of CW 1130.
- E16.5 Backfill of Hydro Excavated Hole
- E16.5.1 The Contractor shall be responsible for the backfill of the hydro excavated hole with flowable cement-stabilized fill upon completion of the work described herein, to the approval of the Contract Administrator.

MEASUREMENT AND PAYMENT

- E16.6 Hydro Excavation

E16.6.1 Hydro excavation of earthen material will be considered incidental to the Contract. No separate measurement and payment will be made.

E16.7 Backfill

E16.7.1 Cement-Stabilized fill is considered incidental to Hydro Excavation and no separate measurement or payment will be made.

E17. RAILWAY PROPERTY CLEANING

DESCRIPTION

E17.1 General

E17.1.1 Keep portions of the Site on CN property clean and tidy at all times. Contractor shall clean up the Site promptly and to the satisfaction of CN.

E17.1.2 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

E17.1.3 Store volatile wastes in covered metal containers and remove from premises daily.

E17.1.4 Prevent accumulation of wastes which create hazardous conditions.

E17.1.5 Provide adequate ventilation during use of volatile or noxious substances.

MATERIALS

E17.2 Use only cleaning materials recommended by manufacturer of surface to be cleaned and as recommended by cleaning material manufacturer.

CONSTRUCTION METHODS

E17.3 Cleaning During Construction

E17.3.1 On a daily basis maintain premises free from debris and waste material.

E17.3.2 Maintain Project Site and public properties free from accumulations of waste materials and rubbish.

E17.3.3 Remove waste materials and rubbish from Site.

E17.3.4 Disposal of wastes on Railway property by burial or burning shall not be permitted.

MEASUREMENT AND PAYMENT

E17.4 Cleaning

E17.4.1 Cleaning and disposal operations are considered incidental to the Work and no separate measurement or payment will be made

E18. OPERATING CONSTRAINTS FOR WORK IN CLOSE PROXIMITY TO FEEDERMAINS

E18.1 Description

E18.1.1 This Section details operating constraints for all work to be carried out in close proximity to the City feeder mains and other critical water infrastructure. Close proximity shall be deemed to be any construction activity within a 5 m horizontal offset from the centreline of the feeder main, within 5 m of valve chambers and other appurtenances, and any other infrastructure identified below.

E18.2 Affected Critical Water Infrastructure

E18.2.1 The Wilkes Avenue Feedermain:

(a) constructed of 900 mm Prestressed Concrete Cylinder Pipe (PCCP) (Lined Core) conforming to AWWA Standard C301-64. The Wilkes Avenue Feedermain was manufactured and installed in 1966;

(b) the feedermain runs east-west along the Wilkes Avenue as shown on the Drawings.

E18.2.2 The Charleswood Feedermain:

(a) constructed of 750 mm Reinforced Concrete Cylinder Pipe (RCCP) water transmission pipe conforming to AWWA C300. The Charleswood Feedermain was manufactured and installed in 1960;

(b) the feedermain runs east-west along the Wilkes Avenue as shown on the Drawings.

E18.3 General Considerations for Work in Close Proximity to Critical Water Infrastructure:

E18.3.1 Feedermain are a critical component of the City of Winnipeg Regional Water Supply System and work in close proximity to feedermain shall be undertaken with an abundance of caution. Feedermain cannot typically be taken out of service for extended periods to facilitate construction and inadvertent damage caused to the pipe would likely have catastrophic consequences.

E18.3.2 Work around feedermain shall be planned and implemented to minimize the time period that work is carried out in close proximity to the pipe and to ensure that the pipeline is not subjected to excessive construction related loads, including excessive vibrations and/or concentrated or asymmetrical lateral loads during backfill placement.

E18.3.3 Large diameter pressure pipe generally has limited ability to withstand increased earth and live loading. Therefore, every precaution must be undertaken to ensure that applied loading during all phases of construction is within accepted loading parameters. Prestressed pipe typically fails in a non-ductile mode and has the potential to cause extensive consequential damage to infrastructure if failure should occur.

E18.3.4 Construction in close proximity to critical infrastructure shall not commence until both the equipment and construction method statements have been submitted, reviewed, and accepted by the Contract Administrator.

E18.4 Submittals

E18.4.1 Submit proposed construction equipment specifications to the Contract Administrator for review a minimum of five (5) Business Days prior to construction. The equipment submission shall include:

(a) equipment operating and payload weights;

(b) equipment dimensions, including: wheel or track base, track length or axle spacing, track widths or wheel configurations;

(c) load distributions in the intended operating configuration.

E18.4.2 Submit a construction method statement to the Contract Administrator a minimum of five (5) business days prior to construction. The construction method statement shall contain the following minimum information:

(a) proposed construction plan including excavation locations, haul routes, excavation equipment locations, and loading positions;

(b) trenchless construction methodology for feedermain crossings, including: installation methods, means of grade control, means of confirming clear separation between the new LDS and existing feedermain;

- (c) any other pertinent information required to accurately describe the construction activities in close proximity to the feedermain and permit the Contract Administrator to review the proposed construction plans.

E18.4.3 Incomplete or partial submissions will not be reviewed and will be returned to the Contractor for re-submission.

E18.4.4 Allow five (5) Business Days for review by the Contract Administrator.

E18.5 Feedermain Operational Limitations

E18.5.1 Feedermain shutdowns (if required) are scheduled based on a number of factors including water demand, weather, reservoir operation, routine maintenance and repair work within the regional distribution system, and other factors. The City shall endeavour to make requested time periods available to the Contractor to schedule his/her work requiring removal of the feedermain from service, without limiting the City's control over the operation of the feedermain to complete other work, maintain adequate water supply and storage of water and maintain the integrity of the infrastructure. The City shall reserve the right to cancel and/or delay these schedule dates at any time, due to any circumstances that could adversely affect the feedermain or water supply including, but not limited to, high water demand, abnormal weather, failures of related water system components and/or security concerns.

E18.5.2 Temporary feedermain shutdowns may be limited to off-peak demand seasons (September 15th to May 15th) and low demand hours including evenings or other low demand periods.

E18.5.3 Notify the Contract Administrator well in advance of construction to coordinate feedermain shutdowns if required to facilitate construction.

E18.6 Pre-Work, Planning and General Execution

E18.6.1 No work shall commence in close proximity to feedermain, chambers, and critical infrastructure until the equipment specifications and construction method statement have been submitted and accepted, and feedermain locations have been clearly delineated in the field. Work over feedermain shall only be carried out with equipment that has been reviewed and quantified in terms of its loading implications on the pipe.

E18.6.2 Contact the City of Winnipeg Water and Waste Department, Construction Services Coordinator prior to construction.

E18.6.3 Locate the Wilkes Avenue feedermain and confirm its position horizontally and vertically at the proposed crossing location in the presence of the Contract Administrator upon commencement work on Site. Deviations from the elevations noted on the Drawings shall be reported to Contract Administrator for review prior to proceeding with work in close proximity to the Wilkes Avenue feedermain.

E18.6.4 Visually delineate all critical infrastructure identified herein on Site by use of paint, staking/flagging, construction fencing, snow fencing, or other suitable methods

E18.6.5 Only utilize construction practices and procedures that do not impart excessive vibratory loads on feedermain and chambers or that would cause settlement of the subgrade below feedermain and critical pipelines.

E18.6.6 If the existing road structure must be removed, crossing of critical infrastructure shall be prohibited from the time the existing roadway structure is removed until the completion of granular base construction. At all times prior to completion of final paving; reduce equipment speeds to levels that minimize the effects of impact loading to the critical infrastructure.

E18.6.7 Only equipment and construction practices stipulated in the accepted construction method statement and the supplemental requirements noted herein may be utilized in close proximity to feedermain, chambers, and other critical infrastructure identified herein.

- E18.6.8 Construction operations should be staged in such a manner as to limit multiple construction loads at one time, (e.g., offset crossings sufficiently from each other, rollers should remain a sufficient distance behind spreaders to limit loads. A reasonable offset distance is 3 m between loads).
- E18.6.9 Granular material, construction material, soil, and/or other material shall not be stockpiled on the pipelines or within 5 m of any feedermain, valve chamber, or other critical infrastructure identified herein.
- E18.6.10 The Contractor shall ensure that all crew members understand and observe the requirements of working near feeder mains, valve chambers, and critical infrastructure. Prior to commencement of on-Site work, the Contractor shall jointly conduct an orientation meeting with the Contract Administrator, all superintendents, foreman, and heavy equipment operators to make all workers on the Site fully cognizant of the limitations of altered loading on, the ramifications of inadvertent damage to, and the constraints associated with work in close proximity to feeder mains and critical pipelines. New personnel introduced after commencement of the Project need to be formally orientated as outlined herein. It is recommended that restrictions associated with the crossing, consistent with the Contractor's submitted method statement be posted on Site and near the crossing.
- E18.6.11 Contractor shall supply, install and remove sub-surface settlement plates for the Wilkes Feedermain crossing according to the Drawings. This will be considered incidental to the Contract and there will be no separate measurement and payment.
- E18.7 Demolition and Excavation
- E18.7.1 Use of pneumatic concrete breakers within 3 m of a feedermain, valve chamber, or critical pipeline is prohibited. Pavement shall be full depth sawcut and carefully removed. Use of hand held jackhammers for pavement removal will be allowed.
- E18.7.2 Offset excavation equipment a minimum of 3 m from the centerline of a feedermain or critical pipeline when undertaking excavations where there is less than 2.4 m of earth cover over the feedermain.
- E18.7.3 Utilize only smooth edged excavation buckets, soft excavation or hand excavation techniques where there is less than 1.5 m of earth cover over the pipeline. Where there is less than 1.0 m of soil cover above the pipeline, provide full time supervision and complete the excavation utilizing hand excavation or soft excavation methods.
- E18.7.4 Equipment should not be allowed to operate while positioned directly over a feedermain or critical pipeline except where permitted herein, outlined in the reviewed and accepted construction method statement.
- E18.8 Underground Works
- E18.8.1 The Contractor shall locate feeder mains and confirm their position horizontally and vertically prior to commencing with any trenchless pipe installations to ensure proper clearances are maintained. Under NO circumstances should blind coring proceed across feeder mains.
- E18.8.2 Install pipes to the grades shown on the Drawings. A minimum clear separation distance (outside to outside of pipe wall) of 500 mm shall be maintained between crossing pipes and the feeder mains.
- E18.8.3 The Contractor shall visually confirm the location and alignment of the drill rods or jacking pipe (horizontally and vertically) prior to proceeding with the trenchless installation beneath the feedermain. It is recommended that the new pipe alignment be confirmed within 2 m of the outside of the feedermain pipe but no closer than 0.5 m from the outside edge of the pipe.
- E18.8.4 Excavations within 2 m of the outside edge of a feedermain (hydrovac holes for confirming trenchless installations excluded) and which extend below overtop of the

feedermain shall be constructed using a tight shoring system to prevent movement of soil around the feedermain.

E18.9 Surface Works

- (a) Fill and base materials shall not be dumped directly over top of feeder mains and critical pipelines but shall be stockpiled outside the limits noted in these recommendations and shall be carefully bladed in-place;
- (b) Compaction of fill or base materials within 3 m (horizontally) of feeder mains and critical pipelines shall be either carried out by static methods (without vibration) or with smaller approved equipment such as hand held plate packers or smaller roller equipment;
- (c) When constructing asphalt pavements only non-vibratory compaction should be used within 3 m (horizontal) of the center of feeder mains and critical pipelines.

E19. CHAIN LINK FENCING

DESCRIPTION

E19.1 General

- E19.1.1 The work covered under this item shall include all operations related to supply and installation of new chain link fencing.
- E19.1.2 The work done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.

SUBMITTALS

E19.2 Shop Drawings

- E19.2.1 The Contractor shall submit to the Contract Administrator for review and approval, at least ten (10) Business Days prior to the scheduled commencement of any fabrication, the proposed Shop Drawings showing fabrication details of the 1.22 m wide chain link gate.

SAFETY AND SEQUENCING

E19.3 Sequencing

- E19.3.1 The new chain link fence (Security Fence) to be installed and approved by the Contract Administrator prior to the removal of the existing chain link fence and backstops.

E19.4 Safety

- E19.4.1 The Contractor shall, at all times and to the satisfaction of the Contract Administrator, ensure the materials and fence components safe at the end of each work day (i.e., No protruding sharp ends on posts, chain link materials stored out of reach or within a fenced off storage site) so as to ensure the safety of students.

E19.4.2 MATERIALS

E19.5 General

- E19.5.1 The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification. All materials supplied under this Specification shall be subject to inspection and acceptance by the Contract Administrator.

E19.6 Fencing

- E19.6.1 Chain link fencing to be 1.83 m in height and supplied in accordance with CW 3550-R3.

E19.6.2 Chain link gate to be 1.22 m wide and supplied in accordance with CW 3550-R3.

CONSTRUCTION METHODS

E19.7 Chain Link Fence

E19.7.1 Install new chain link fencing to the limits shown in the Drawings in accordance with CW 3550-R3.

MEASUREMENT AND PAYMENT

E19.8 Chain Link Fence

E19.8.1 Chain Link Fencing will be measured for payment on a length basis and paid for at the Contract Unit Price per metre for "Chain Link Fencing 1.83 m height" which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the Work included in this Specification, accepted and measured by the Contract Administrator.

E19.8.2 Chain Link Gate will be measured for payment on a per unit basis and paid for at the Contract Unit Price per unit for "Gate 1.22 m Wide" which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the Work included in this Specification, accepted and measured by the Contract Administrator.

E19.8.3 The safety component as stated in this specification shall be considered incidental to "Chain Link Fencing 1.83 m height" and no separate measurement or payment will be made.

E20. REMOVAL AND DISPOSAL OF FENCING AND BACKSTOPS

DESCRIPTION

E20.1 General

E20.1.1 This specification covers the removal and disposal of existing chain link fencing and backstops.

E20.1.2 The work done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.

CONSTRUCTION METHODS

E20.2 Sequencing

E20.2.1 The chain link fence and backstops shall not be removed until the new chain link fence (Security Fence) has been installed and approved by the Contract Administrator.

E20.3 Protection

E20.3.1 Prevent movement, settlement or damage of adjacent lands. Make good damage caused by demolition.

E20.4 Removal of Existing Chain Link Fence and Backstops

E20.4.1 The Contractor shall remove chain link fencing and backstops as indicated on the Drawings including any gates, posts, concrete post foundations associated with fencing and backstops. The post holes remaining following the removal of the fencing shall be backfilled and compacted to the satisfaction of the Contract Administrator. All concrete rubble shall be removed by the Contractor.

E20.5 Disposal of Existing Chain Link Fence and Backstops

- E20.5.1 The Contractor shall be responsible for removing backstops, fencing, debris and waste from the Work area and disposing off Site.

MEASUREMENT AND PAYMENT

E20.6 Removal and Disposal of Chain Link Fence

- E20.6.1 The removal and disposal of existing chain link fencing will be measured on a per length basis and paid for at the Contract Unit Price for "Chain Link Fence Removal". The length to be paid for will be the total number of metres of chain link fence removed and disposed in accordance with this specification, accepted and measured by the Contract Administrator.
- E20.6.2 The removal and disposal of existing backstops will be measured on a per unit basis and paid for at the Contract Unit Price for "Backstop Removal" which price shall be payment in full for completing all operations herein described and all other items incidental to the Work included in this Specification, accepted and measured by the Contract Administrator.
- E20.6.3 Backfilling post holes, removing and disposing of fence posts, concrete post foundations and concrete rubble shall be considered incidental to removals of Chain Link Fence" and "Backstop" and no separate measurement or payment will be made.

E21. WARNING SIGNS

DESCRIPTION

- E21.1 This Specification covers the supply and installation of permanent warning signs required to identify the presence of new pipelines at railway crossings.

MATERIALS

E21.2 Galvanized Steel Posts

- (a) 38 mm nominal diameter schedule 40 steel pipe conforming to the latest revision of CAN-Z245.1;
- (b) O.D. = 48.3 mm;
- (c) Wall thickness = 3.7 mm.

E21.3 Warning Sign

- (a) Aluminum sheet size as indicated on the Drawings;
- (b) Black lettering on white Type VIII retro-reflective sheeting (ASTM D4956).

CONSTRUCTION METHODS

- E21.4 Install warning signs as indicated on the Construction Drawings.

MEASUREMENT AND PAYMENT

- E21.5 Supply and installation of warning signs shall be measured on a unit basis and paid for at the Contract Unit Price for "Warning Signs". The number of units to be paid for will be the total number of warning signs supplied and installed in accordance with these specifications.

E22. REINFORCED CONCRETE PIPE

E22.1 Description

- (a) This specification covers the requirements where reinforced concrete pipe is installed using jacking methods and in a trench.

E22.2 Materials

E22.2.1 Reinforced Concrete Jacking Pipe

- (a) Reinforced concrete jacking pipe shall conform to CW 2130, ASTM C76 and CSA A257;
- (b) Minimum pipe class as shown on Drawings;
- (c) Pipe classes for jacking pipe as shown on the Drawings are for long term design conditions and loading. The Contractor shall verify that the pipe class, strength, reinforcing and joint design are suitable for his/her proposed installation methods and procedures. Design of any pipe to suit installation methods is the responsibility of the Contractor. Axial load carrying capacity shall be designed in accordance with ASCE 27; for trenchless installations and ASCE 15 of trench installations as detailed on Drawings:
- (d) Reinforcement for pipe intended for trenchless installations must take into account the potential for the pipe to rotate during installation. The design of stirrups and circumferential reinforcement must not result in a preferential installation orientation for the pipe unless appropriate controls are put in place, precluding rotation of the pipe during installation;
- (e) External joint bands of jacking pipe shall conform to CW 2130 and ASTM A36;
- (f) Perform a minimum of one (1) three-edge bearing test in accordance with ASTM C76 and C497 for each size of pipe installed. Test shall confirm both the service cracking and ultimate load capacity of the pipe. Test shall be performed in the presence of the Contract Administrator. The pipe supplier shall provide a minimum of seven (7) Calendar Days advance notice to the Contract Administrator prior to undertaking the test.

E22.3 Submittals

E22.3.1 Submit Shop Drawings for reinforced concrete jacking pipe in accordance with ASTM C76 and CW 2160. Shop Drawings shall include the following:

- (a) all pipe and joint dimensions;
- (b) steel reinforcement configuration.

E22.3.2 Submit quality control documentation in accordance with ASTM C76 and CW 2160. Quality control documents shall include the following:

- (a) mill tests for reinforcing steel;
- (b) concrete test results;
- (c) results from three-edge bearing test(s).

E22.4 Construction Methods

- (a) Land drainage sewers shall be installed in accordance with CW 2130 and E25.4;
- (b) Verification of Utility Elevations as indicated in E23.

E22.5 Measurement and Payment

- (a) Measurement and payment for sewer installation shall be in accordance with CW 2130 as specified;
- (b) Measurement and payment for manholes shall include the base diameter and height, transition slabs, all stubs and plugs as indicated on the Drawings. No separate measurement and payment will be made for these components.

- (c) Measurement and payment for manholes MHL.11 and MHL.15 will be made as a lump sum for each manhole and shall include the larger base diameter and height, transition slabs, all stubs and plugs as indicated on the Drawings.

E23. TRENCHLESS EXCAVATION

- E23.1 Further to Clause 3.4.1 of CW 2130, all underground utilities to be installed by trenchless methods unless indicated otherwise in the Drawings. All pipes under the railway, existing roadways and parking lots are to be installed by trenchless methods.
- E23.2 Verification of Utility Elevations
 - (a) Prior to construction, the Contractor shall verify all buried utility elevations at proposed crossing locations. Verification shall occur in a minimum of fourteen (14) Calendar Days prior to any construction on the land drainage sewer such that any required grade adjustments can be made. Contractor shall arrange for all required utility locations, safety watches and other required notifications. Contractor shall provide a minimum of five (5) Calendar Days' notice to the Contract Administrator of conducting utility exposures.
- E23.3 Minimize the time period associated with trenchless installations.
- E23.4 Selection of excavation equipment for installation of sewers by trenchless methods shall be the responsibility of the Contractor and shall be made based on the basis of expected soil conditions outlined in the geotechnical report as per **Appendix A** and as detailed on the soil logs. The Contractor shall make allowances in the choice of equipment to account for reasonable and minor deviations in ground conditions and shall have contingency plans for the removal of boulders and other minor changes in ground conditions. Contractor shall continuously visually monitor trenchless excavations for increases in silt content and soft clay in the excavated material. Notify Contract Administrator if silt contents or soft clay in excavated material increase.
- E23.5 In the event that there is a substantial change in the character or nature of the subsurface conditions or that obstructions are encountered, which adversely impact the Contractor's production or construction procedure, the Contractor shall immediately notify the Contract Administrator.
- E23.6 The notice shall provide details of the change in subsurface soil conditions or obstructions encountered, any proposed construction procedure revision that the Contractor intends to undertake, as well as any other relevant supporting information.
- E23.7 The Contract Administrator shall review the notice as expeditiously as possible to assess whether the change in conditions and revised construction procedures amount to a Change in Work. In the case of obstructions due to boulders in the silt/till or hardpan strata where that stratum is evident in the soils logs, no consideration will be made for a Change in Work as boulder obstructions can be reasonably anticipated when working in this stratum. Obstructions such as "random boulders" in the clay strata well above the till interface may be considered as a Change in Work dependent on the level of effort required to facilitate their removal.
- E23.8 Where the Contract Administration deems that a Change in Work is necessary, it shall be valued in accordance with the provisions of C 7 and the supplementary requirements of E26.

E24. TRENCHLESS EXCAVATION OBSTRUCTIONS

- E24.1 Contingency plans for removal of the obstructions encountered in trenchless excavations must be approved by the Contract Administrator and may consist of, but not limited to, one (1) of the following.
- E24.2 Drill or excavate a shaft at the location of the obstruction and remove the obstruction.
- E24.3 Remove the obstruction through the jacking head or core hole following drilling, splitting or breaking the obstruction into smaller components as required.

- E24.4 Other removal methods approved by Contract Administrator.
- E24.5 Where the Contract Administrator deems that the obstruction encountered represents a Change in Work, it shall be valued in accordance with C7.4 (c) and the following supplemental requirements:
- E24.6 The first four (4) hours of handling obstructions for each occurrence shall be the responsibility of the Contractor.
- E24.7 Equipment rates for equipment required in support of the obstruction removal shall be compensated at the MHCA rental rates. Equipment not listed in the MHCA rate schedule shall have their rates established by the Contractor prior to the commencement of Work in accordance with the procedure documented in the MHCA rental guide for establishing equipment rental rates and shall be subject to the approval of the Contract Administrator.
- E24.8 Standby equipment that cannot reasonably be deployed elsewhere during the duration of the obstruction removal shall be compensated at fifty percent (50%) of its established rate as noted in E24.7 above.
- E24.9 Labour rates and material costs associated with obstruction removal shall be compensated as per C7.4 (c) and C7.4.1 with the provision that any removal and replacement of pavements shall be compensated at the Contract Unit Price for such Work.

E25. EXCAVATION, BEDDING AND BACKFILL

- E25.1 Submittals
- (a) Submit shoring designs, in accordance to CW 2030.
- E25.2 Existing Utilities
- (a) Arrange and pay for any required safety watches around existing utilities as per CW1120.
- E25.3 Disposal of Unsuitable or Surplus Excavated Material
- (a) The Contractor is responsible for arranging for a disposal site for all excavated material off of Site, including all associated works including transportation and payment of tipping fees. Disposal of all excavated material shall be considered incidental to the Works.
- E25.4 Pipe in a Trench Foundation, Bedding, Haunching, Initial Backfill and Final Backfill
- (a) Pipe installations in a trench between SRB 6-22 and MH.L.11 will be permitted in the green space south of the CN right-of-way near SRB 6-22;
- (b) Pipe foundation, bedding, haunching and initial backfill shall be constructed with non-frozen materials according to Drawing details for rigid and flexible pipe;
- (c) When construction proceeds during freezing conditions, Contractor shall either heat and protect all materials from freezing or use open graded Type 3 materials that do not require free moisture for compaction for constructing foundation, bedding and initial backfill for pipes in a trench. Type 3 material shall be wrapped in a non-woven geotextile;
- (d) Cement-Stabilized Fill shall be used below the pipe in the foundation zone extending to undisturbed soil where the pipe infringes on the open shaft excavation;
- (e) Final backfill for pipe in a trench in the green space shall be Class 2 using non-frozen materials:
- (i) Placing frozen final backfill material during final backfilling operations will result in considerable consolidation of the final backfill material when it thaws
- (ii) Obtain the necessary approvals from Contract Administrator prior to utilizing frozen or potentially frozen material as final backfill material. If frozen material is approved for use, the Contractor is solely responsible for repairing the final backfill to the

depth necessary as subsequent damage due to excessive consolidation of the material

- (iii) Contractor shall take all reasonable precautions to limit the amount of frozen backfill material and not contaminate or mix non-frozen final backfill with frozen materials
- (iv) Contract Administrator will withhold a deficiency amount consistent with the estimated value of subsequent damage repair required of Contractor

E25.5 Shaft and Manhole Foundation and Final Backfill

- (a) All shaft and manhole foundation and final backfill shall be constructed with non-frozen materials;
- (b) All shafts shall be backfilled to within the top 300 mm of the ground surface with Class 2 backfill as per SD-002 except as modified herein including shafts for watermains;
- (c) When construction proceeds during freezing conditions, Contractor shall choose one of the following two options for backfilling the shafts:
 - (i) Class 2 backfill according to SD-002 using a non-frozen Type 1 material
 - (ii) Class 2 backfill according to SD-002 using an open graded Type 3 material, free of moisture and/or ice that do not require free moisture for compaction. The Type 3 material shall be used instead of the Type 1 material
- (d) The top 300 mm of all shafts shall be constructed with Cement-Stabilized Fill;
- (e) Cement-Stabilized Fill shall be used below the pipe in the foundation zone extending to undisturbed soil where the pipe infringes on the open shaft excavation;
- (f) Shafts to accommodate a tunnelling or jacking machine shall be constructed with a concrete foundation of sufficient cross section and trueness to adequately support and align the machine during tunnelling operations.

E25.6 Measurement and Payment

- (a) Excavation, shoring, and backfilling for pipe installation will not be measured for payment. Costs for excavation and shoring shall be included in the price for installation of the pipe. No separate measurement or payment will be made:
- (b) There will be no separate measurement and payment for Pavement Removals according to CW 2030 or removals according to CW 2130. All Pavement Removals shall be considered incidental to the Contract.

E26. CONNECTING TO EXISTING SEWERS

E26.1 Description

- (a) This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 2130 Gravity Sewers, and shall cover connect to existing sewers.

E26.2 Materials

E26.2.1 Formwork, Reinforcing Steel and Concrete

- (a) As per City of Winnipeg CW 2160.

E26.2.2 Concrete Mix Design

- (a) Concrete Mix Design as per Table CW 2160, Type A mix.

E26.3 Submittals

- E26.3.1 Submit shoring design, reinforcing steel Shop Drawings and concrete mix design in accordance to CW 2160.

E26.4 Construction Methods

E26.4.1 Cast-in-place concrete as per CW 2160.

E26.5 Method of Measurement and Basis of Payment

E26.5.1 Connections to existing sewers shall be measured on a unit basis and paid for at the Contract Unit Price for "Connecting to Existing Sewer". The unit price shall include but not be limited to concrete coring for the pipe opening, required piping and structural connection collar to the existing sewer, shoring, backfill, cast-in-place concrete works and performing all operations necessary to complete the Works as specified and as indicated on the Drawings including all items incidental to the Works.

E27. MAINTAINING EXISTING SEWER FLOWS, FLOW CONTROL, DIVERSIONS AND BYPASS PUMPING

E27.1 Maintaining Existing Sewer Flows, Flow Control, Diversions and Bypass Pumping required to complete the Works in the Contract shall be incidental to the Contract as per Clause 4.16.1 of CW 2130.

E28. RIPRAP

E28.1 Description

E28.1.1 This Specification covers all operations necessary for placing riprap, as erosion protection, along the banks of SRB 6-22. This Specification amends and supplements Standard Specification CW 3615.

E28.1.2 The Work to be done under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work hereinafter specified.

E28.2 Materials

E28.2.1 Riprap shall be manufactured from hard, durable limestone or dolomite that is resistant to the action of water and frost and suitable in all respects for the purpose intended. The rock shall meet the following physical requirements:

- (a) Class 350, well graded having a full range of and even distribution of sizes;
- (b) minimum bulk specific gravity of 2.6 (ASTM C127);
- (c) maximum Los Angeles abrasion loss of thirty-five percent (35%) (ASTM C131);
- (d) maximum soundness loss of eighteen percent (18%) (ASTM C88);
- (e) maximum absorption of two and a half percent (2.5%) (ASTM C127);
- (f) maximum moisture content of three percent (3%) by weight (ASTM D2216-98).

E28.2.2 Acceptance of Material

- (a) The Contractor shall supply a representative sample of 1 tonne of riprap delivered to the Site for review by Contract Administrator or provide access to the quarry manufacturing the riprap at least ten (10) Calendar Days prior to the placement of the riprap at Site. The Contractor shall submit the proposed supplier and location of the rock and confirm that sufficient quantity of specified rock is available at least ten (10) Calendar Days prior to the commencement of the Construction;
- (b) The Contract Administrator shall perform the necessary tests to determine compliance with the specified properties.

E28.3 Construction Methods

- E28.3.1 Snow cover shall be cleared from the sideslope of the pond and hauled off-Site prior to placement of the riprap. Ice at the shoreline shall be broken and cleared before placement of riprap below ice level. Care shall be taken to ensure that the ice is removed, and that it does not become trapped below riprap during placement.
- E28.3.2 Riprap shall be installed to the elevations, grades, thickness, and dimensions as shown on the Drawings, or as directed by the Contract Administrator.
- E28.3.3 Riprap shall be placed in a manner that prevents damage to the geotextile.
- E28.3.4 Riprap shall be placed in a manner such that larger pieces are uniformly distributed, smaller rocks fill the spaces between the larger rocks, and that excessive segregation of the various rock sizes does not occur.

E28.4 Measurement and Payment

- E28.4.1 Supply and installation of riprap will be measured and paid for on a volume basis. The volume to be paid for shall be the total number of cubic meters of riprap delivered and placed in accordance with this Specification and as accepted by the Contract Administrator. Payment shall be at the Contract Unit Price "Supply and Placement of Class 350 Random Stone Riprap".

E29. GEOTEXTILE

E29.1 Description

- E29.1.1 This Specification covers the supply and installation of the geotextile fabric and shall amend and supplement Standard Specification CW 3130-R2. Sub clauses 2.1 to 2.4, 3.5 to 3.10 and 4.3 apply.
- E29.1.2 The Work to be done under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all other things necessary for and incidental to the satisfactory performance and completion of all Work hereinafter specified.

E29.2 Materials

- E29.2.1 The geotextile shall be a non-woven geotextile fabric, meeting or exceeding the following properties as specified in Table CW 3130.1.

E29.3 Construction Methods

- E29.3.1 Geotextile fabric shall be installed as shown on the Drawings.
- E29.3.2 Installation, handling, and storage of geotextile fabric shall conform to the manufacturer's recommendations.
- E29.3.3 If more than one piece of fabric is used to cover the ground surface the joints shall be overlapped by 0.6 m, in a shingle pattern, with the up-slope pieces overlapping the down-slope pieces and the up-stream pieces overlapping the down-stream pieces.
- E29.3.4 Tears or other damage in the geotextile fabric shall be repaired with a piece of geotextile fabric placed over the damaged area and extending 1.0 m in all directions beyond the damaged area. Damaged or torn geotextile shall be replaced or repaired at the Contractors expense.

E29.4 Measurement and Payment

- (a) The supply of geotextile fabrics will be considered incidental to the works, and no separate measurement and payment will be made.

E30. TEMPORARY COFFERDAM

E30.1 Description

E30.1.1 This Specification covers the construction, operation and removal of the temporary cofferdam required for construction of the new outfall 1600 CSP Outfall in SRB 6-22.

E30.2 Materials

E30.2.1 The Contractor shall have the option of isolating the outfall by either construction of sandbag cofferdam, granular cofferdam, clay cofferdam, installing manufacture water-inflated tube cofferdams, or installing portable steel frame coffer dams.

E30.2.2 Sandbag Cofferdam

- (a) Sandbags for the cofferdam shall be approved by the Contract Administrator prior to placement;
- (b) A floating silt curtain shall be installed within 5 m of the sandbag cofferdam, in accordance with Specification E30.4.5(e) – Supply and Placement of Silt Curtain.

E30.2.3 Granular Cofferdam

- (a) Fill for a granular cofferdam shall be clean gravel or crushed rock with the following gradation: one hundred percent (100%) <100 mm, fifty percent (50%) > 20 mm, eight percent (80%) > 3 mm, zero percent (0%) < 7 µm, or an equivalent material considered suitable by the Contract Administrator;
- (b) The granular material shall be wrapped in an impervious liner to prevent hydraulic piping or percolation through the cofferdam. The impervious liner shall be overlapped a minimum of 0.6 m on the downstream side of the cofferdam and stapled to cofferdam at 0.3 m intervals;
- (c) A floating silt curtain shall be installed within 5 m of the sandbag cofferdam, in accordance with Specification E30.4.5(e) – Supply and Placement of Silt Curtain;
- (d) Contractor to ensure that no sediment is released during installation, operation or removal.

E30.2.4 Clay Cofferdam

- (a) Fill for the a clay cofferdam shall consist of high plasticity clay soil, with a liquid limit in excess of fifty percent (50%) and hydraulics conductivity of 10^{-7} cm/sec or less;
- (b) The clay shall be unfrozen and free of deleterious materials such as roots, organics, silt, sand, gravel, ice, snow or any other undesirable materials that would detract from the properties of low permeability clay soil;
- (c) A floating silt curtain shall be installed within 5 m of the sandbag cofferdam, in accordance with Specification E30.4.5(e) – Supply and Placement of Silt Curtain;
- (d) Contractor to ensure that no sediment is released during installation, operation or removal.

E30.2.5 Water-Inflated Tube Cofferdam

- (a) Water-inflated tube cofferdams shall be manufactured of an impervious material that is flexible and able to conform to the channel bottom. The tube shall have dual internal chambers that are aligned side by side to promote stability by internal hydrostatic pressure;
- (b) Aqua-Barrier and Layfield's Aqua Dam are approved products.

E30.2.6 Portable Steel Frame Cofferdam

- (a) A portable steel frame cofferdam shall consist of an impervious membrane and weighted toe apron draped over a steel frame designed to transfer pressure at the face of the cofferdam downwards.

E30.3 Submittals

E30.3.1 The Contractor shall submit the following to the Contract Administrator:

- (a) manufacturer's product specification as applicable;
- (b) design sealed by a Professional Engineer registered in the Province of Manitoba indicating that the proposed system can safely accommodate the anticipated loading conditions;
- (c) proposed installation methods, including construction sequence, methodology, and schedule of all works specified herein for the cofferdam, and associated materials.

E30.4 Construction Methods

E30.4.1 Design Requirements

- (a) The Normal Water Level (NWL) and High Water Level (HWL) of SRB 6-22 is 229.82 m and 231.04 m, respectively;
- (b) The Contractor shall, at minimum, build the cofferdam to accommodate a water level of 230.6 m and an additional 0.5 m of freeboard, corresponding to the anticipated rise caused by a 1:5 year summer rainfall event;
- (c) Elevations in SRB 6-22 are likely to increase during the spring melt (typically following March 15 of the given year), and during summer rainfall events. The Contractor shall be prepared at all times to evacuate the work area due to sudden changes in levels in SRB 6-22;
- (d) The Contractor shall be responsible to ensure the work area remains in dry and workable conditions;
- (e) The Contractor shall ensure that the 1600 CSP LDS south of the new outfall does not become isolated from SRB 6-22 as a result of the cofferdam;
- (f) The Contractor shall ensure the cofferdam can safely withstand.

E30.4.2 Preparation of Existing Ground Surface for Sandbag, Granular and Clay Cofferdams

- (a) All topsoil in areas below the cofferdam and other clay fills shall be stripped in accordance with CW 3170. Stripping shall consist of excavation and disposal of the existing vegetation, underlying root mass, surface black organic topsoil, and any other deleterious or wet materials, down to suitable clay soil subgrade;
- (b) Where unsuitable subgrade material is encountered including, but not limited to, silts, soft clays and organic material, it shall be sub-excavated below the stripping depth, as directed by the Contract Administrator;
- (c) The Contractor shall ensure that the subgrade is sufficiently stable and compacted to a minimum of ninety-five percent (95%) Standard Proctor Maximum Dry Density;
- (d) Snow and/or ice shall be cleared from the areas of Work prior to construction of the Works. The methodology to clear the snow and/or ice shall be subject to the acceptable of the Contract Administrator;
- (e) Temporary stockpiling of the cleared snow and/or ice cover may be permitted at the locations and to dimensions acceptable to the Contract Administrator. All procedures

for temporary stockpiling shall consider the requirements for temporary sediment and erosion control measures and channel slop stability.

E30.4.3 Sandbag Cofferdam

- (a) Equipment utilized for construction of the sandbag cofferdam shall be of a size suitable to Site conditions and provide adequate compaction to all points of the cofferdam and construction materials;
- (b) Upon completion of the outfall construction the cofferdam shall be removed, sand bags kept intact and the material disposed of at an approved disposal site as directed by the Contract Administrator.

E30.4.4 Granular Cofferdam

- (a) The impervious liner shall be laid on the ground with enough circumferential length to allow for a minimum of 0.6 m overlap on the downstream side of the cofferdam;
- (b) Fill for the granular cofferdam shall be placed in layers not exceeding 150 mm, and shall be compacted to ninety-five percent (95%) Standard Proctor Maximum Dry Density;
- (c) The finished grade shall not vary more than 50 mm from a straight grade between the design grades, with a minimum 1 m top width;
- (d) Fine grading of the top and side slopes of the cofferdam shall be completed following construction of the cofferdam;
- (e) After fine grading, the impervious liner shall be wrapped around the granular dyke with a minimum 0.6 m overlap on the dry side, and stapled to the cofferdam at 0.3 m intervals;
- (f) Equipment utilized for construction of the granular cofferdam shall be of a size suitable to Site conditions and provide adequate compaction to all points of the cofferdam and construction materials;
- (g) Upon completion of the outfall construction, the cofferdam shall be removed and the material disposed of at an approved disposal site as directed by Contract Administrator.

E30.4.5 Clay Cofferdam

- (a) Materials shall be deposited and spread in uniform homogenous layers in maximum 200 mm thick lifts, for the full width of the cofferdam;
- (b) Each lift shall be thoroughly compacted to a ninety-five (95%) Standard Proctor Maximum Dry Density within four (4%) of the optimum moisture content;
- (c) Where the moisture content of the clay is too high or low, the material shall be thoroughly worked (dried or wetted) until the specified moisture content and compacted density can be achieved;
- (d) The clay subgrade of each lift shall be scarified a minimum depth of 50 mm prior to placement of the succeeding lift;
- (e) The finished grade shall not vary more than 50 mm from a straight grade between the design grades, with a minimum 1 m top width;
- (f) Placement of clay fill in a frozen state will not be permitted;

- (g) Upon completion of the outfall construction, the cofferdam shall be removed and the material disposed of at an approved disposal site as directed by Contract Administrator.

E30.4.6 Water-Inflated Tube Cofferdam

- (a) All work related to storage, handling, and installation of water-inflated tube cofferdams shall comply with the procedures and recommendations of the Manufacturer, and as accepted by the Contract Administrator;
- (b) The Contractor shall remove any large rocks or objects that are located in the intended path of the cofferdam to ensure proper contact between the cofferdam and the ground surface;
- (c) The Contractor shall remove any tree stumps or sharp objects from the channel that could potentially puncture the cofferdam;
- (d) Any damaged water-inflated tube cofferdam as identified by the Contract Administrator shall be repaired immediately at the Contractor's own cost. The damage area shall be repaired to the satisfaction of the Contract Administrator;
- (e) Removal of water-inflated tube cofferdams shall be performed in such a manner to minimize siltation of the water;

E30.4.7 Portable Steel Frame Cofferdam

- (a) All work related to storage, handling, and installation of portable steel frame cofferdams shall comply with the procedures and recommendations of the Manufacturer, and as accepted by the Contract Administrator;
- (b) Any damaged portable steel frame cofferdams as identified by the Contract Administrator shall be repaired immediately at the Contractor's own cost. The damaged area shall be repaired to the satisfaction of the Contract Administrator;
- (c) Removal of the portable steel frame cofferdam shall be performed in such a manner to minimize siltation of the water.

E30.5 Measurement and Payment

- (a) Construction of the temporary cofferdam will be paid for at the Contract Lump Sum Price for "Temporary Cofferdam", and no measurement shall be made;
- (b) Payment will include all operations and materials described herein, including but not limited to existing ground preparation, construction and removal, control of water and dewatering;
- (c) Payment for the supply and placement of the silt curtain required for the sandbag, granular and clay cofferdams will be considered incidental to the cofferdam works, and no separate measurement and payment will be made;
- (d) Payment will be as follows:
 - (i) completion of installation of the cofferdam barrier –fifty percent (50%)
 - (ii) dewatering during construction, proportional to percent of Work complete – thirty percent (30%)
 - (iii) removal of cofferdam – twenty percent (20%)

E31. SUPPLY AND PLACEMENT OF SILT CURTAIN

E31.1 Description

- (a) This Specification shall cover the supply and placement of a floating silt curtain across SRB 6-22 downstream of the cofferdams, as required per Section E30.

E31.2 Materials

- (a) Silt curtain rolls shall be tagged to provide product identification for inventory and quality control purposes;
- (b) AGES Turbidity Barrier or Layfield's Floating Silt Curtain (FSC) are approved products.

E31.3 Construction Methods

- (a) All Work related to storage, handling, and installation shall comply with the procedures and recommendations of the Manufacturer, and as accepted by the Contract Administrator;
- (b) The silt curtain shall be placed prior to commencing the work on the cofferdam, and shall remain in place while work is taking place in and around water, or as directed by the Contract Administrator. Removal of the silt curtain shall be performed in such a manner to minimize siltation of the water.
- (c) Any damaged silt curtain, as identified by the Contract Administrator, shall be repaired immediately at the Contractors own cost. The damaged area shall be repaired to the satisfaction of the Contract Administrator.

E31.4 Measurement and Payment

- (a) The silt curtain will be considered incidental to the cofferdam dam construction and no separate measurement or payment will be made in accordance with Section E30.

E32. CORRUGATED STEEL PIPE

E32.1 Description

- (a) This Specification shall supplement CW 3610 for the supply and installation of the 1600 mm Corrugated Steel Pipe (CSP) Outfall.

E32.2 Materials

E32.2.1 Corrugate Steel Pipe

- (a) Shall conform to CAN/CSA-G401-M;
- (b) The pipes shall be a helical corrugation of 125 x 25 mm (pitch x depth);
- (c) The ends of the helical CSPs shall be re-corrugated to a 125 x 25 00 annular profile;
- (d) The CSPs shall have a minimum wall thickness of 4.2 mm;
- (e) The CSPs shall have an Aluminized Type 2 Coating;
- (f) The maximum section length shall be 8 m.

E32.2.2 Couplers and Gaskets

- (a) Shall conform to CAN/CSA-G401-M;
- (b) The couplers shall consist of 125 x 25 mm annular corrugate couplers and have a minimum wall thickness of 1.6 mm and a minimum width of 600 mm;
- (c) The couplers shall have an Aluminized Type 2 Coating;
- (d) The 1600 mm CSP couplers shall consist of two pieces per coupler, with the top section covering 1/3 to 1/2 of the pipe circumference;
- (e) The gaskets shall be of sleeve type gaskets.

E32.2.3 Coupler Fasteners

- (a) Coupler flanges shall consist of rolled or formed angles, or lugs, which are to be riveted or welded to the coupler;
- (b) Where flanges are riveted to couplers, minimum rivet diameter shall be 10 mm. The minimum number of rivets per flange shall be nine (9);
- (c) Flanges on one (1) piece couplers shall be located within 25 mm of one end and at least 100 mm from the other end;
- (d) On two (2) piece couplers, the flanges on the top section shall be located within 25 mm of both ends. The flanges on the bottom section of the coupler shall be located at least 100 mm from both ends;
- (e) Bolts and nuts shall be supplied for connecting coupler flanges. Couplers shall have at least five 12 mm diameter galvanized bolts per connection. The bolts shall be equally spaced along the connection;
- (f) The coupler ends shall have a minimum overlap of 50 mm after the connection is tightened;
- (g) Coupler fastener components shall be galvanized.

E32.3 Submittals

- (a) Submit Shop Drawing for outfall section, including details of cut profile and cut treatment;
- (b) Coupling detail complete with gasket information.

E32.4 Construction Methods

- (a) Bedding and initial backfill shall be consistent with the Flexible Pipe Installation detail as shown on the Drawings;
- (b) Isolate galvanized accessories from the aluminized CSP by means of non-metallic isolation washers and hole sleeves to completely separate galvanized and aluminized surfaces;
- (c) Isolate aluminized CSP surface from concrete connection collar by asphaltic mastic coating.

E32.5 Measurement and Payment

- (a) Measurement and payment for the CSP installation will be in accordance with CW 3610.

E33. CONCRETE COLLAR CONNECTION

E33.1 Description

- (a) This Specification shall cover the construction of the Concrete Collar Connection between the 1500 Reinforce Concrete Pipe (RCP) and the 1600 mm Corrugated Steel Pipe (CSP).

E33.2 Materials

E33.2.1 Formwork, Reinforcing Steel and Concrete

- (a) As per City of Winnipeg CW 2160.

E33.2.2 Concrete Mix Design

- (a) Concrete Mix Design as per Table CW 2160, Type A mix.

E33.3 Measurement and Payment

- (a) The concrete collar connection shall be paid for at the Contract Lump Sum Price for “Concrete Collar Connection between the 1500 mm RCP and 1600 mm CSP”.

E34. ACCESS TO SRB 6-22 OUTFALL

E34.1 Description

- (a) This specification shall cover the requirements for accessing the outfall at SRB 6-22 for construction activities related to:
 - (i) the installation of the 1500 mm LDS from MH.L11 to the outfall, including the outfall construction
 - (ii) the construction of the jacking/receiving shaft for the 1200 mm LDS trenchless installation from MH.L11 to MH.L19

E34.2 Site Description for SRB 6-22

- (a) SRB 6-22 is located north of Wilkes Avenue on City owned public reserve land.
- (b) Construction access shall be from Waverley Street through either:
 - (i) the CN Rivers Subdivision property
 - (ii) the construction easement adjacent to and extending south from the CN Rivers Subdivision property line as shown in the Drawings

E34.3 Construction access through the CN Rivers Subdivision property

- (a) The Contractor shall provide CN flagging and Protecting Foreman as per E14;
- (b) The Contractor shall provide traffic control, ensuring CN vehicles maintain first right of access within the CN Rivers Subdivision property;
- (c) Ensure drainage along the swale on the south side of the property is maintained during construction.

E34.4 Construction access through the construction easement

- (a) The Contractor may modify the existing berm, within the construction easement, as required ensuring the safe passage of construction vehicles and equipment.
- (b) The Contractor may remove shrubs and excavate and dispose material to help facilitate construction access.

E34.5 Measurement and Payment

- (a) Access to the Site including SRB 6-22 will be considered incidental to the Works, and no separate measurement and payment shall be made;
- (b) All works related to accessing the Site, such as clearing and grubbing, disposal of excavated material, and temporary drainage works, will be considered incidental to the Works. No separate measurement and payment shall be made.

PART F - SECURITY CLEARANCE

F1. SECURITY CLEARANCE

- F1.1 Each individual proposed to perform the following portions of the Work:
- (a) any Work on private property;
 - (b) any Work within City facilities other than:
 - (i) an underground structure such as a manhole
 - (ii) in areas and at times normally open to the public
 - (c) communicating with residents and homeowners in person or by telephone.
- F1.1.1 Each Individual shall be required to obtain a Criminal Record Search Certificate from the police service having jurisdiction at his/her place of residence. Or
- (a) BackCheck, forms to be completed can be found on the website at: <http://www.backcheck.net/> ; or
 - (b) Commissionaires (Manitoba Division), forms to be completed can be found on the website at: <https://www.commissionaires.ca/en/manitoba/home> .
- F1.2 The following is a link to information for obtaining the Criminal Record Search certificate from the City of Winnipeg Police Service. http://winnipeg.ca/police/pr/info_request.stm
- F1.2.1 The Criminal Record Search shall include a Vulnerable Sector Screening. This can be obtained by following the link below http://winnipeg.ca/police/pr/info_request.stm
- (a) Individuals will need to state in the form, that they may be working in City of Winnipeg pools, libraries and community centres.
- F1.2.2 The original Criminal Record Search Certificate (Form P-253) will be provided by the Winnipeg Police Service to the individual applicant. The original has a validation sticker from the Winnipeg Police Service in the top right hand corner. The applicant shall:
- (a) Provide the original Criminal Record Search Certificate (Form P-253) to the Contract Administrator.
- F1.3 Prior to the award of Contract, and during the term of the Contract if additional or replacement individuals are proposed to perform Work, the Contractor shall supply the Contract Administrator with a Criminal Record Search Certificate obtained not earlier than one (1) year prior to the Submission Deadline, or a certified true copy thereof, for each individual proposed to perform such Work.
- F1.4 Any individual for whom a Criminal Record Search Certificate is not provided, or for whom a Criminal Record Search Certificate indicates any convictions or pending charges related to property offences or crimes against another person will not be permitted to perform any Work specified in F1.1.
- F1.5 Any Criminal Record Search Certificate obtained thereby will be deemed valid for the duration of the Contract subject to a repeated records search as hereinafter specified.
- F1.6 Notwithstanding the foregoing, at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated criminal records search. Any individual who fails to provide a satisfactory Criminal Record Search Certificate as a result of a repeated criminal records search will not be permitted to continue to perform any Work specified in F1.1.